DL-2300 Service Manual

Shanghai Doli photographic equipment co., Ltd.

Main technical specification

Print resolution (maximum)	520dpi
Maximum print size	305 x 457mm
Capacity	550prints/hour (152x102mm)
Processing time	3'45"
Light source	LED Matrix
Imaging unit	LCD
Lens	4 fix focus lens automatically selected by computer depend on the print size
Network Protocol	TCP/IP
Color management	Color under control system built in Linux Server (base on profiles)
Process	CD: 30 second BF: 30 second
Working tank volume	CD: 11.3L BF: 11.3L STB: 11L
Replenishing tank volume	CD: 6L BF: 6L STB: 6L
Paper width	89-305mm (3R-12R)
Supported file format	bmp, jpeg, tiff
Power supply	AC 210-230V, 50-60HZ
Rating current	12A
Power	Peak 5KW Average 2.5KW
Weight	590kg (without chemical)
Dimension	2030mm x 870mm x 1260mm (Length x Width x Height)

Explanation of manual

About the chapters

- 1. Cautions for work

  Contain information on how to achieve safety in service operations.

  Be sure to read precautions thoroughly and carefully.

- 2. Maintenance

  Contain items concerning maintenance necessary to make high quality prints.

- 3. Service

  Contain information for service personnel.

- 4. Electrical parts and wiring diagram

  Describe the sensors and PCB's used in this machine and the wiring diagram.

- 5. Trouble shooting

  Describe how to solve the troubles.

Symbols used in this manual

Definitions of the symbols used in this manual are as follow:

	Warning symbol. Text following this symbol contains particularly Information concerning safety. Pay extra attention to this information.
	Important symbol. Indicates operation or procedures requiring caution, instructions which should be followed, supplementary explanations, etc.
	Reference symbol. Indicates the manual or section which should be referred to.
	Help symbol. Indicates functions or instructions which are convenient to know.

Abbreviations for processing solutions

The names of the processing solution in this manual are indicated as below. Some of types of processing solutions may have other names.

Processing solutions	Abbreviations
Color developer	CD
Bleach Fixer	BF
Stabilizer	STB

Index

1

Chapter 1 Caution for work

This chapter contains information on how to achieve safety in service operations.

Be sure to read precautions thoroughly and carefully.

1.1 For safe operation

- **General precautions**

   Prior to any part replacement or mechanical adjustment, be sure the air brake is switched off.

  - Ground wires (green and yellow) are connected to the covers and units of the machine. For reassembly, be sure to connect the ground wires as they were.
  - Be sure to perform an operation check after replacing or adjusting any parts (or units).

- **Precaution against electric shock**

  - If any case you have to take care of wiring for the power such as moving the machine, ask a qualified professional electrician to do so. Do not forget to ground the machine.
  - Pay attention to avoid shocks when performing troubleshooting, wiring checking, or voltage/current measurement.
  - When replacing a fuse or PCB, be sure to switch off the air brake.

- **Precaution for operating rotary section**

  - Be careful with your hands, hair, clothes, etc., not to be caught under the gear, chain, belt, roller, fan and other rotating parts.
  - Do not remove the cover unless it is specified.
  - If your hand or the like is caught and you can not move, ask someone around you to turn off the air brake at once.

1.2 Countermeasure for static electricity when replacing and maintaining the electrical parts

If an electronically charged human body touches electronic parts like PCBs, it may adversely affect the electronic parts.

When handling the electronic parts, be sure to use static-dissipative conductive gloves to prevent the components on the PCB from being damaged due to static electricity.

The static-dissipative conductive gloves are included in the spare parts of your machine.

 When using the static-dissipative conductive gloves, be sure to turn off the air brake and wait 15 seconds to carry out operation.

1.3 Handling chemicals

The work with the machine involves the handling of slightly poisonous, irritating and etching substances, to apart from these, the user must ensure sufficient aeration. The air in industrial workrooms should be exchanged at least 8 to 10 times per hour.

All photographic developers contain substances which may irritate the skin, the mucous membrane and the eyes and which may cause allergic skin reactions affecting very sensitive persons. For this reason, avoid long or repeated skin contact, especially with developer solutions.

For all jobs where photographic processing solutions may splash, e.g. preparing and filling in chemical solutions, cleaning processing racks etc.:

- Wear protective gloves; rinse all solutions that get on the skin with plenty of running water.
- Wear industrial glasses.
- Wash with soap and rinse with lots of water after completion of work.

Store chemicals and processing solutions in a safe place.

If a processing solution has been ingested accidentally, immediately rinse mouth with water, and drink 2 or more cups of water and induce vomiting. Contact a physician as soon as possible, and follow physician's instructions.

If processing solution gets into eyes, immediately rinse them under running water for at least 15 minutes, and then contact a physician.

Processing solution stains on your clothing may result in discoloration or fading, when handling processing solutions, wear clothing for work wear.

Photochemical are not allowed to be drained off into the public sewage system! Please

obtain the information about the regulations in force about the handling and correct disposal of chemistry from the country's authorities in charge.

1.4 Storage

The chemicals should be stored and prepared according to the manufacture's information and advice.

All Color papers must always be stored in a cool and dry place.

The best storage temperature is between 2℃ and 10℃.

Opened packages have to be stored at a relative humidity of 20-60%.

Storage at 20℃ over several days is possible without problems.

Storage temperatures above 30℃ should be avoided because they will cause visible alterations after only a few days.

2

Chapter 2 Maintenance

This chapter contains items concerning maintenance necessary to make high quality prints.

Prologue

The Steps of the following sections may not be the same depend on the LCD model.

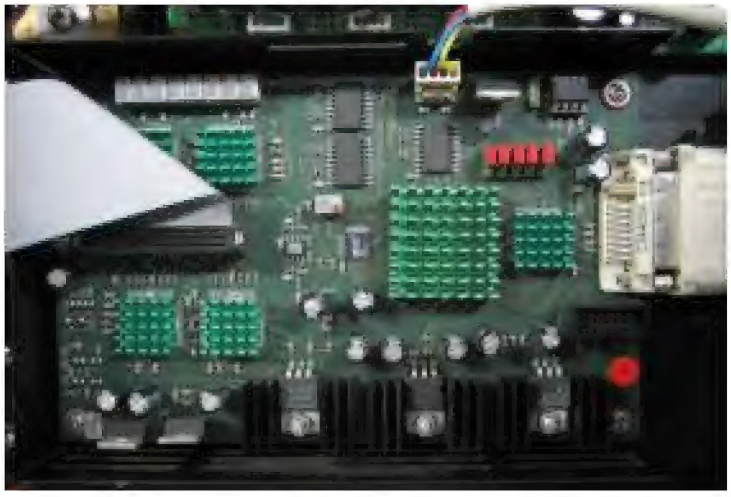
- 2.5 Twister 4 calibration
- 2.6 Twister 9 calibration
- 2.7 Uniformity calibration

To identify the LCD model of your machine:

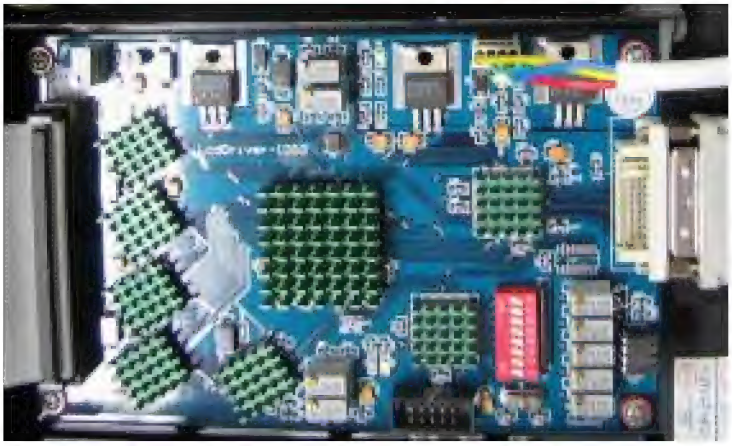
➢ Remove the exposure head cover.

➢ Remove the LCD driver board cover.

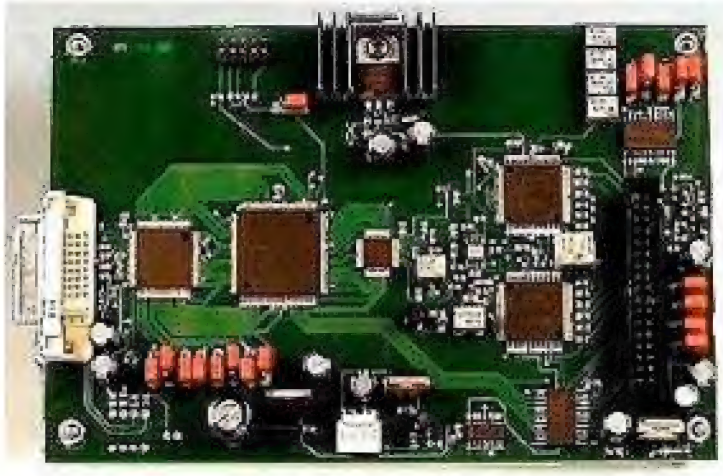
- The LCD driver board will report the LCD model:



Sony 036 LCD driver board



EPSON LCD driver board



Sony 028 LCD driver board

For a steady-going machine and making high quality prints, maintenance is very important.

Maintenance needs to be performed regularly. Otherwise unexpected problems could arise and the lifespan of the machine could be shortened.

- **Daily maintenance**
  - Start-up the machine in a sequence.
  - Spray some fresh water on the upper rollers of the processing racks and the cross-overs.
  - Morning test for all the paper magazines
- **Weekly maintenance:**
  - ABCD calibration if necessary.
  - Change the STB water.
  - Clean the filters of the working tanks.
  - Clean the cross-overs.
- **3 Month maintenance:**
  - Uniformity calibration for all the Lens
  - Twister 4 calibration if necessary
  - Twister 9 calibration if necessary
  - Clean the tanks if necessary.
  - Check the replenishing pumps, circulation pumps and the pipes to avoid potential chemical leakage.

Machine start-up sequence:

1. Turn on the Linux server.
2. Turn on the Windows PC
3. Wait until the Linux server startup finish.
4. Turn on the Drive power.

 Improper start-up of the machine could cause unexpected problems of the photos.


Windows PC power button


DRIVE START


Linux Server power button

2.1 Morning setup

Purpose: To compensate the color deviation caused by changes of chemicals, etc., keep color output stabilized.

Precondition: Processing solution temperature has reached the set value.

Steps:

- Run **Maintenance**.
- Complete the **Calibration** > **Calibration**.

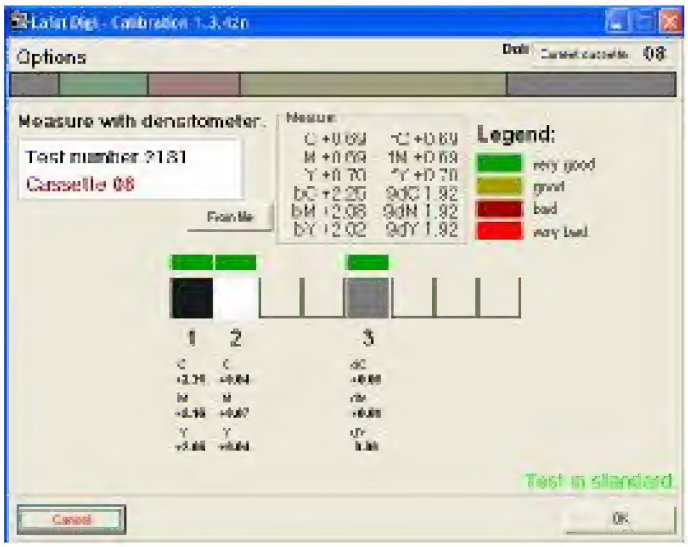


Fig 2.1.1

- Complete the **Calibration** > **Paper characteristics**.

Fig 2.1.2

This setup shall be performed for each cassette.

Calibration offers normal color control.

Paper characteristics offer professional color control.

 If you perform the **Paper characteristics** without completing the **Calibration**, you may need to spend more time on this calibration.

 During the calibration, press Ctrl key on the keyboard and while click **Cancel**, you can leave the calibration interface without wasting a new print.

Press Ctrl key on the keyboard while entering the **Calibration** or **Paper characteristics** to continue the calibration.

2.2 ABCD calibration

Purpose: To calibrate the image exposure center of the photo. In the case white border appears on the photo, this calibration shall be performed for the corresponding formats of the photos.

Steps:

- Open **Maintenance**.
- Select **cassette offset**, and then clicks **Next**.
- Select formats and then click **Next**, then computer will send test prints for the formats you selected.
- After the test prints coming out, key in the **A**, **B**, **C**, **D** value of the test prints to the corresponding format's dialog box.

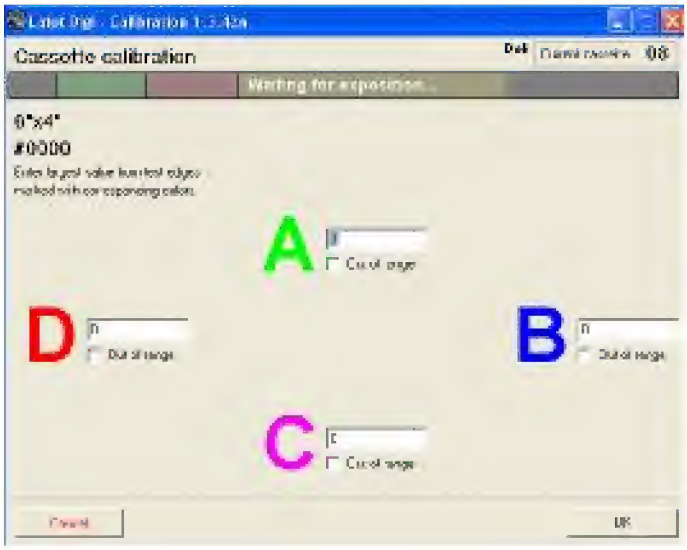


Fig 2.2.1

- Click **Next**, then computer will send new test prints for these formats, repeat the above step, until the deviation of **A** and **C**, **B** and **D** value is within 4.

This calibration shall be done for each format and each cassette.

For example, if you have 2 cassettes with 152mm paper loaded which are cassette 01 and cassette 02, you will need to do this calibration for the 152x102mm and 152x203mm formats etc for both cassettes.

2.3 Double exposure center calibration

DL-2300 performs double exposure for 152x102mm and 127x89mm formats automatically. For a better understanding of double exposure, you can send 2 copies of 152x102mm format (152mm paper width) in **Istudio** and then open the printer door to watch the exposure procedure.

Usually this calibration has been done in the factory, no need to do it again by the user.

Purpose: To calibrate the image exposure center of the 152x102mm or 127x89mm photos which are printed by double exposure mode, this calibration shall be performed when white border appears on these photos while the ABCD calibration has been completed for the corresponding formats.

Precondition: The **ABCD calibration** has been completed for the corresponding format.

Steps:

- Open **Maintenance**, and then click **service**.

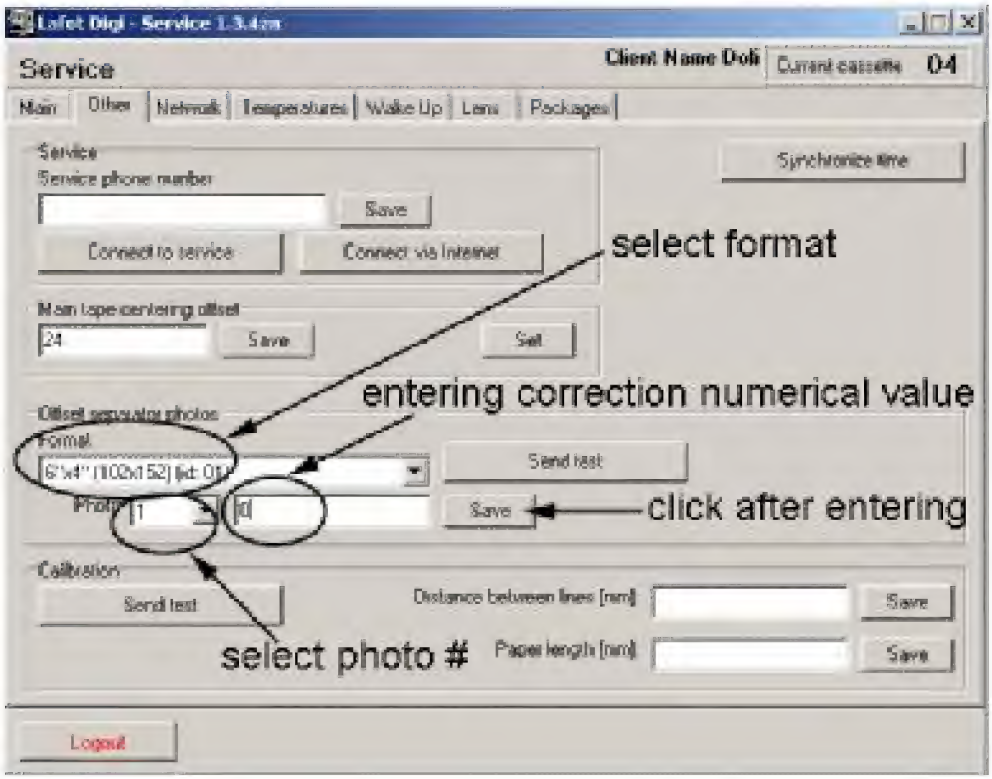


Fig 2.3.1

- On **Other** tab under **Offset separator photos** select the format to be calibrated.

The double exposure center data is saved under the corresponding format ID in the Linux Registry, so we need to do this calibration for both 152x102mm and 127x89mm formats.

- Click **Send test** 5 times to send 5 groups of test prints.
- After the test prints come out, select **1** in **Photo**, and then key in the correction value depend on the average deviation of these 5 groups of No.1 test prints, the method is as follow:

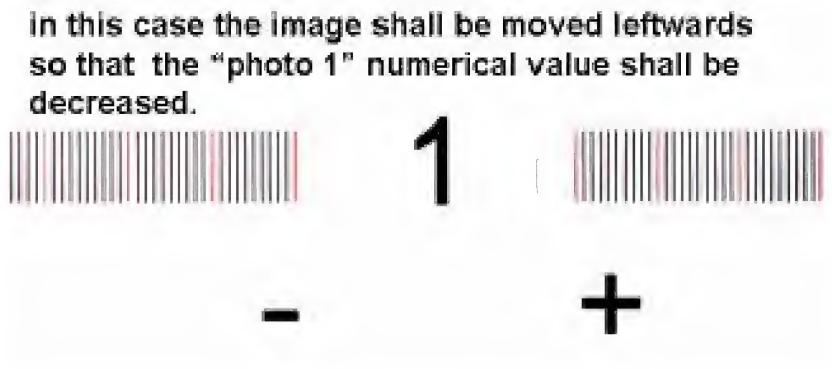


Fig 2.3.2

If you minus 2 then the image will be moved leftwards 2mm on the photo.

- Click **save**.
- Select **2** in **Photo**, enter the correction value, the method is the same as above.

If you have deleted the 152x102mm or 127x89mm format in Maintenance, the double exposure center data of the corresponding format will be lost.

2.4 Temperature calibration

Purpose: To set up the temperature for each working tank according to the requirement of the processing solution, and calibrate the actual temperature of each working tank to be the same as its monitor display.

Precondition: The temperature of the processing solution has reached the set value.

Tools required: Thermometer with 0.1℃ definition.

Steps:

- On Washcontrol PCB adjust the trimmer VR1, to get the voltage between TE4 and TE3 to be DC 0.273V.
- Shut down the machine.
- Open the printer back cover, and then plug the C2 plug into the Windows PC COM port.

If the COM port has been occupied by the Barbieri densitometer, you will have to unplug it since the Windows PC main board have only one COM port, in this case the Barbieri densitometer shall be restored to the COM port after the calibration finish, otherwise the morning test will not be able to be performed.

The DS-25 densitometer use USB port so that you won't have this problem.

The Barbieri densitometer was used on some early machines.

Fig 2.4.1

- Set the Washcontrol PCB and the Platformctrl PCB DIP No.1 to ON.
- On the Q8 and Q9（on the left side of the DIP switch）of the Washcontrol PCB, there are 3 pins each, take off the 2 black jumper caps and plug onto the 2 lower pins.

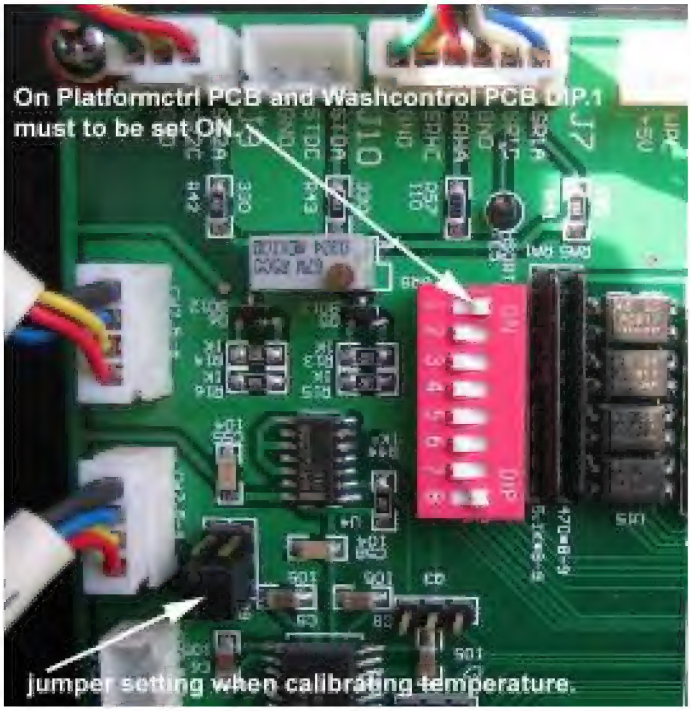


Fig 2.4.2

- Turn on the machine.
- In 2300 machine Windows computer **DL-2300** folder find and run **DJ218Test**.

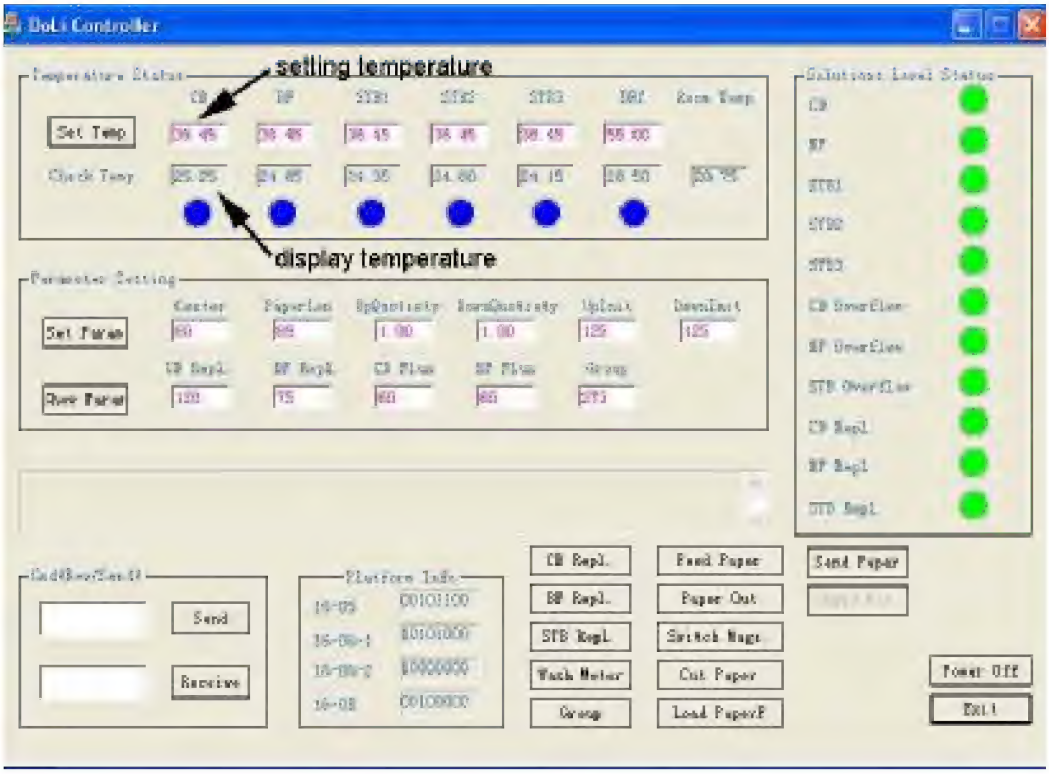


Fig 2.4.3

- Key in the temperature values for each tank and then click **save**.
- Measure the temperature of each tank by thermometer, and then adjust the appropriate trimmers on the Washcontrol PCB to get the display temperature matching the actual temperature which is read out of the thermometer.

  Trimmer definitions of the Washcontrol PCB are as below:

Trimmer	Definition
VR2	CD
VR3	BF
VR4	STB1
VR5	STB2
VR6	Standby
VR7	Dryer
VR8	Room Temp.
VR9	Standby

 Take precaution when measuring to avoid chemical inter-contamination, when reading the thermometer, leave the thermometer in the tank.

- Shut down the machine; restore the jumpers and the DIP setting.

2.5 Twister 4 calibration

A photo printed on a DL-2300 is composed of pixel matrix. DL-2300 uses a 1280×1024 resolution LCD for image making, so that for each time exposure, there will be a 1280×1024 pixel matrix coming onto the photo.

Actually this resolution is not good enough for the photographic business, so that DL-2300 use 4 times or 9 times exposure technology to expose 4 times or 9 times for each photo (Fig 2.5.1), a 2560x2048 or 3840×3072 pixel matrix will come onto the photo at the end.

During each time exposure the information on the LCD is different.

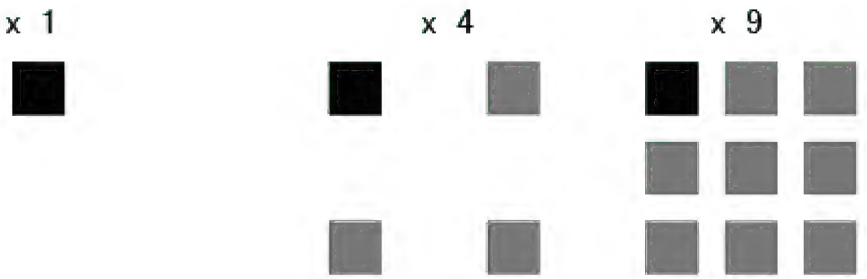


Fig 2.5.1

The position of each time exposure is controllable, the final result of the photo must be composed of a uniformly distributed pixel matrix, if 2 pixels are close to each other too much then there will be a overlapping effect so that it will come up the tiny horizontal or vertical lines or grid lines on the photos.

Purpose: To remove the strong grid lines of the photos which are printed by 4 times exposure mode, in the case the grid lines appear on these photos after several months, this calibration shall be performed.

Tools required:

- Magnifier (at least 8X)
- 127mm or 152mm glossy paper

Steps:

1. Initialize the twister 4 data in the Linux Registry.
   - On the DL-2300 machine Windows PC click **Run**.
   - Key in **\\10.1.1.1\win-software**.
   - **Run lregedit**.

➢ Specify **etc/twister/advance** (Fig 2.5.2).

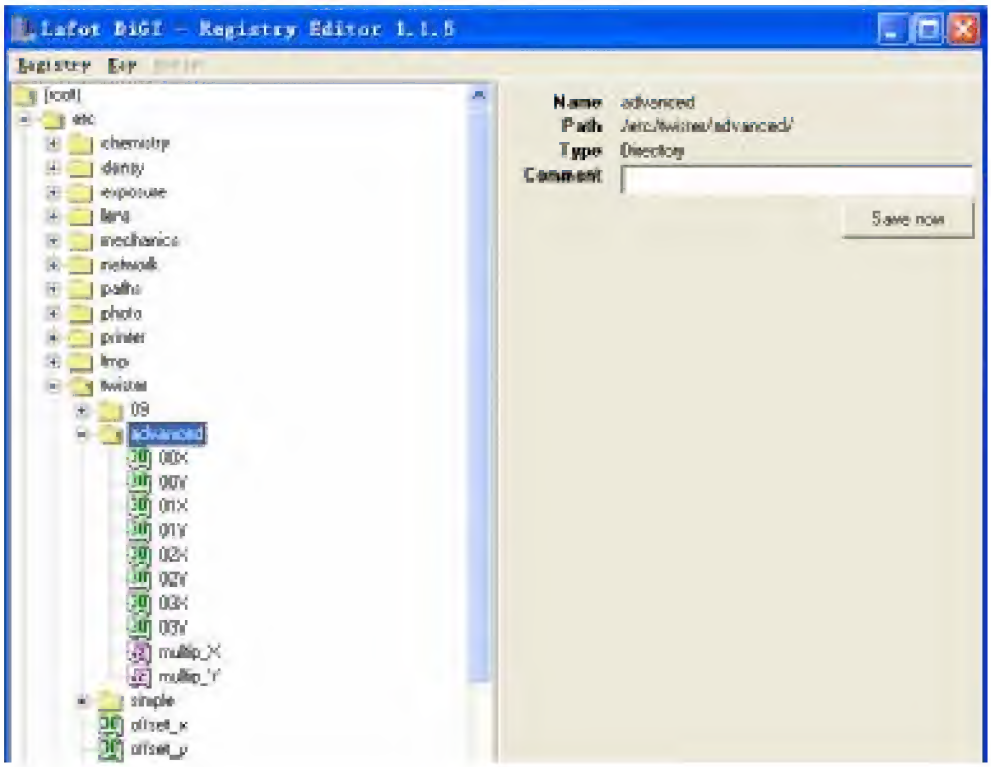


Fig 2.5.2

➢ Initialize the key values depend on the LCD model of your machine as the table below:

Chapter 2 Maintenance > **Prologue** for identifying the LCD model of your machine

EPSON LCD

Key	initial value
00X	0
00Y	0
01X	420
01Y	210
02X	630
02Y	630
03X	210
03Y	420
multip_X	1.000000
multip_Y	1.000000

Sony 036 LCD

Key	initial value
00X	0
00Y	0
01X	500
01Y	250
02X	750
02Y	750
03X	250
03Y	500
multip_X	1.000000
multip_Y	1.000000

Sony 028 LCD

Key	initial value
00X	0
00Y	0
01X	600
01Y	300
02X	900
02Y	900
03X	300
03Y	600
multip_X	1.000000
multip_Y	1.000000

- Click **save now**.

2. Send a test print.
   - On the DL-2300 machine Windows PC click **Run**.
   - Key in **\\10.1.1.1\win-software**.

➢ **Run Sendp** (Fig 2.5.3).

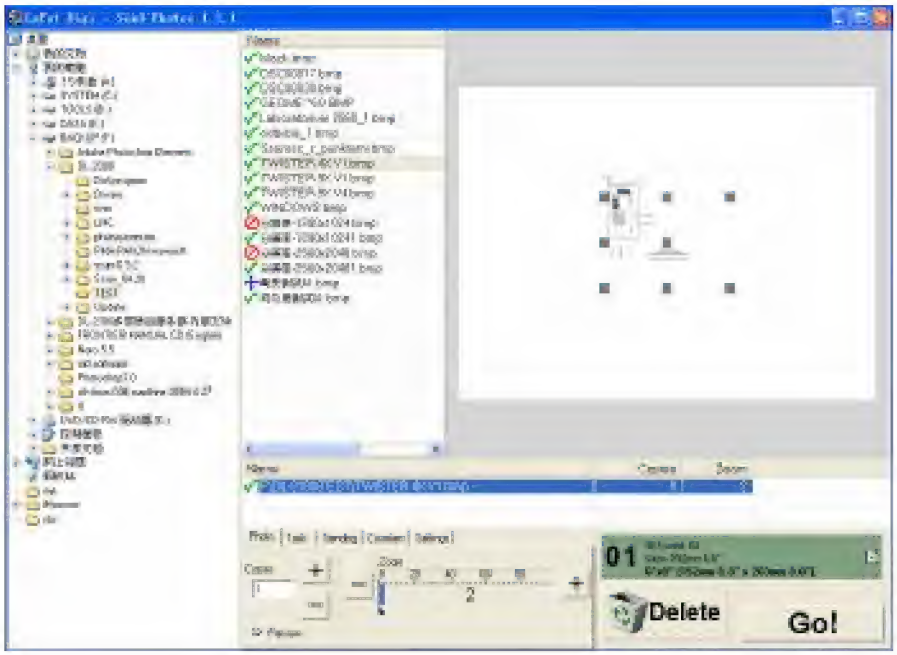


Fig 2.5.3

➢ Find **TWISTER 4X V1.bmp** file. Double click this file to add it to the printing list.

If you don't know where the file located, on the DL-2300 machine Windows PC click **start** > **search** to search the file.

➢ On **Task** tab set **Comment** to !!!, and **ExposureMode** to 112 (Fig 2.5.4).

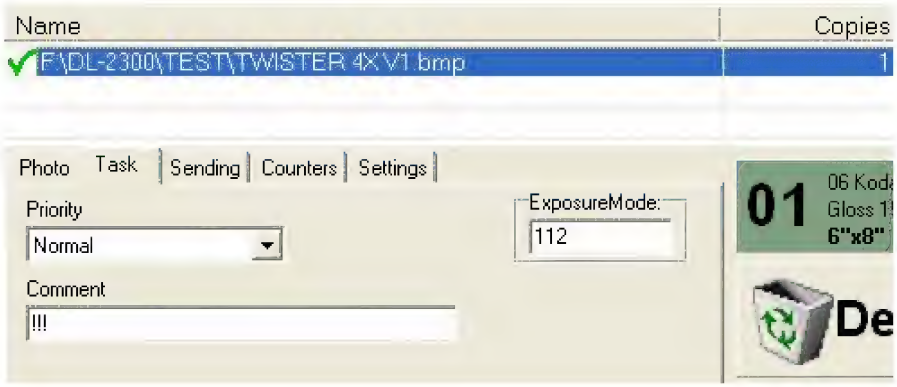


Fig 2.5.4

- On **Photo** tab select lens 002 by clicking **+** or **–** in **Zoom** (Fig 2.5.5).
- Select format 152x203mm (Fig 2.5.5).

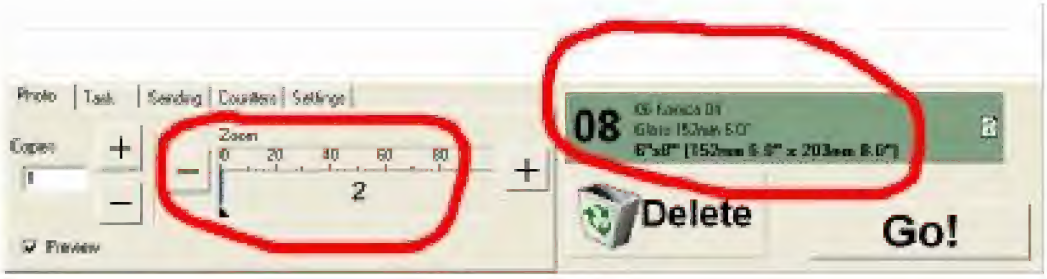


Fig 2.5.5

- Click **Go!** to send a test print.

3. Observe the below district of the test print by magnifier,

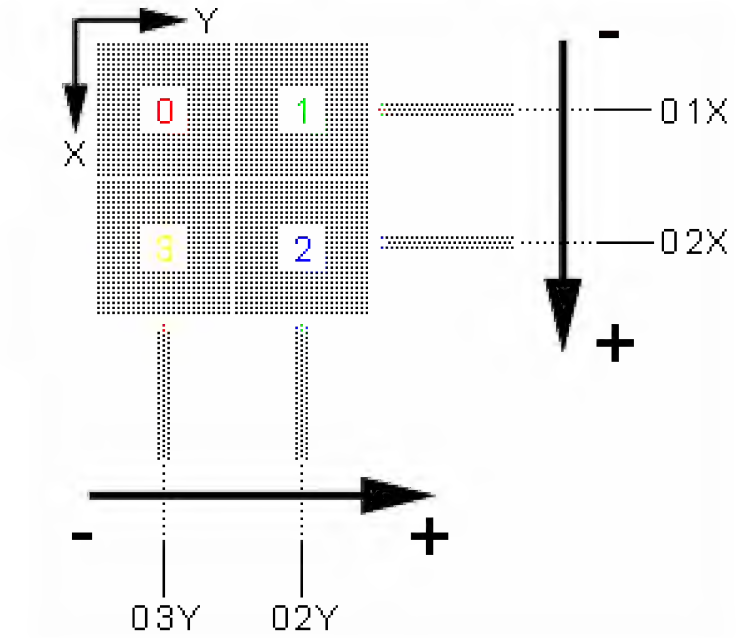


Fig 2.5.6

01X, 02X, 02Y, 03Y each corresponds to a group of 3 lines, all of them must be distributed symmetrically.

Assume that the 02Y corresponded to the following group of lines:

Fig 2.5.7

The middle line is not in the center of the other 2 lines, accordingly it shall be moved rightwards to get this 3 lines distributed symmetrically.

- In this case in the Linux registry **etc/twister/advanced** the value of 02Y which

shall be increased, such as: +10.

On the contrary, decrease the value if the middle line shall be moved leftwards.

- Click **save now**.
- Complete the adjustment for the other 3 groups of lines, the method is similar.
- Go back to **Sendp**, click **Go!** to send a new test print, repeat the above adjustments until the result is good.

4. On the below district of the test print, observe the joint point between the **01Y 02Y** line or the **02X 03X** line and the square by magnifier.

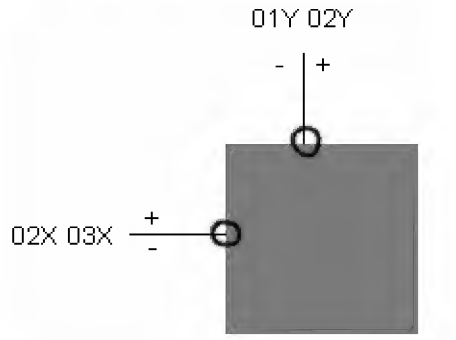


Fig 2.5.8

The ideal result shall be as Fig 2.5.8 (magnify and take the joint point between the **01Y 02Y** line and the square for example):

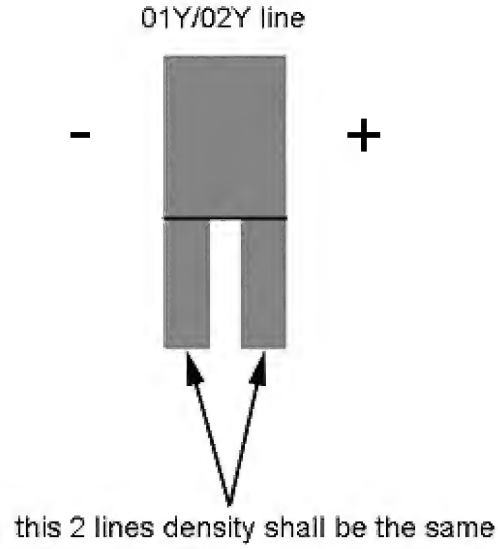


Fig 2.5.8

Usually there are two lines beneath the **01 02Y** line, the density of these 2 lines shall be the same. Otherwise the **01 02Y** line shall be moved to the direction of the stronger line.

- Assuming the density of the left line is higher than the right line, the **01 02Y** line shall be moved leftwards. The left side of the **01 02Y** line is a minus (-) sign, therefore in the Linux registry **etc/twister/advanced/** the key **01Y** and **02Y** shall be decreased the same value in the meantime, such as: -2 or -5.

- Click **save now**.
- The adjustment methods of **02X** and **03X** is similar.
- Go back to **Sendp**, click **Go!** to send a new test print, repeat the above adjustments until the result is good.

 For user, usually no need to do the step 1 and the step 3, just complete the step 4 base on the current data is OK.

2.6 Twister 9 calibration

9 times exposure mode offers a higher resolution for the photos which are printed by the lens 000 such as 203x152mm and 203x305mm formats than 4 times exposure mode. At the same time though, the exposure time is longer.

3.15 Lens selection logic

If the LCD model of your machine is Sony 036, then no need to do this calibration.

Chapter 2 Maintenance > **Prologue** for identifying the LCD model of your machine

If **High Quality** has been selected when creating a format in **Maintenance**, this format will be printed in 9 times exposure mode (Fig 2.6.1).

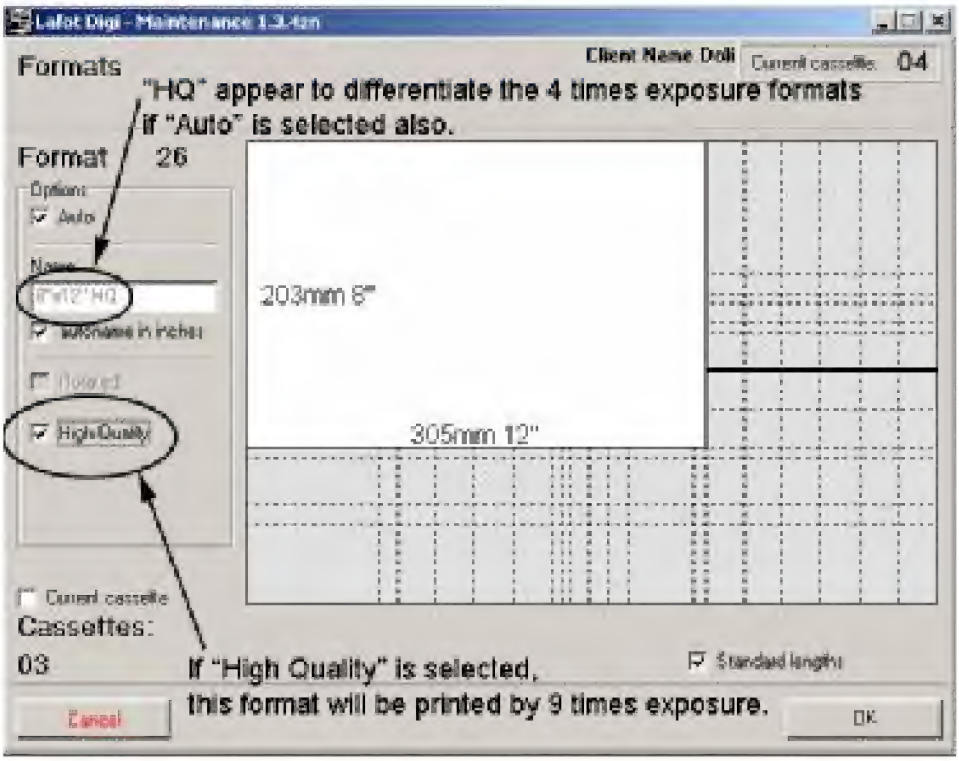


Fig 2.6.1

Purpose: To remove the strong grid lines of the photos which are printed in 9 times exposure mode, in the case the grid lines appear on these photos after several months, this calibration shall be performed.

Tools required:

- Magnifier (at least 8X)
- 203mm glossy paper

Steps:

1. Minimize the horizontal grid lines.

   The twister 9 data is located at **etc/twister/09** in the Linux Registry (Fig 2.6.2).

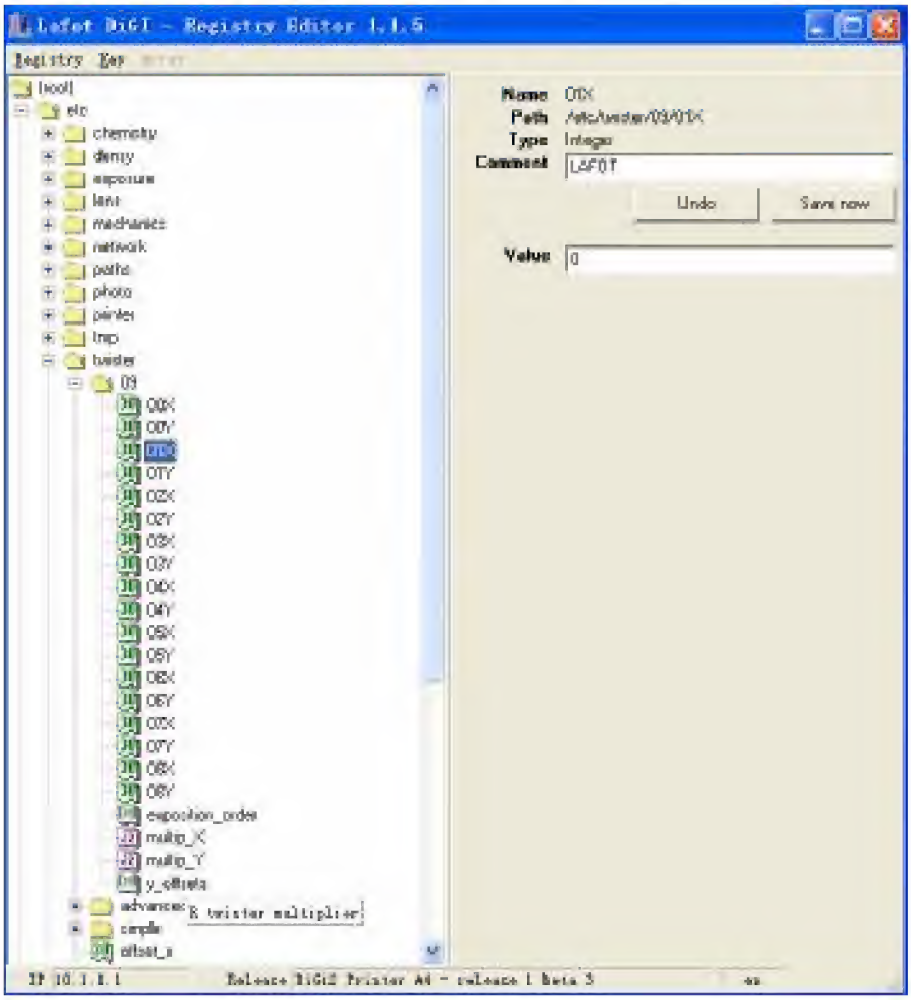


Fig 2.6.2

By adjusting the value of **3X**, **4X**, **5X** and **6X**, **7X**, **8X**, the horizontal grid lines can be minimized.

- Prepare ring around test data.

For a better understanding, see Fig 2.6.3.

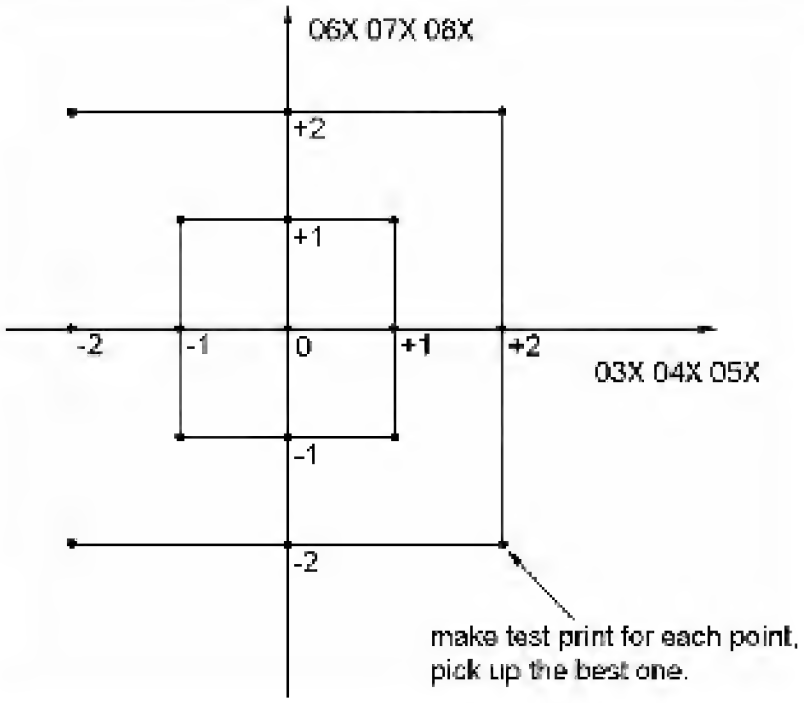


Fig 2.6.3

In the Linux Registry, modify the value of the **3X**, **4X**, **5X** and the **6X**, **7X**, **8X** as the table below, after each time modification, save the data to Windows PC:

Data #	03X 04X 05X value modification	06X 07X 08X value modification
0	0	0
1	+1	0
2	+1	+1
3	0	+1
4	-1	+1
5	-1	0
6	-1	-1
7	0	-1
8	+1	-1
…		

For example, the data ID 1 is a new data after modification base on the data ID 0.

The **3X**, **4X**, **5X** must be modified the same value at the same time, same with **6X**, **7X**, **8X**.

To save the data to Windows PC, highlight **09**, right click mouse and then select **export…** (Fig 2.6.4):

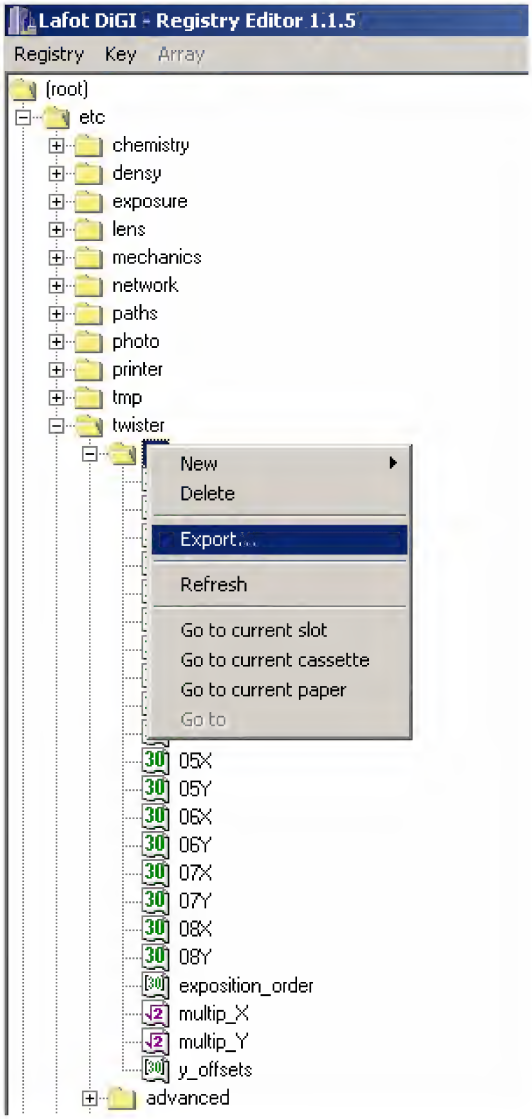


Fig 2.6.4

The following dialog box pops up:

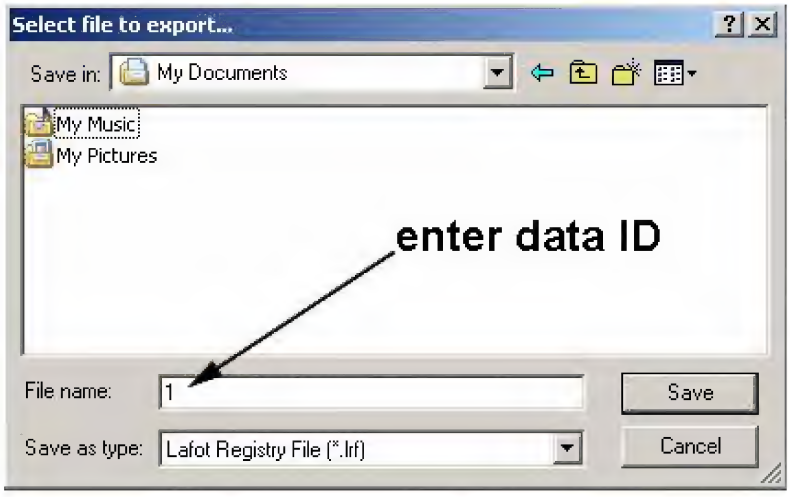


Fig 2.6.5

Use the corresponding data ID for the file name, and then click **Save**.

Finally, there will be a group of data files saved:

Fig 2.6.6

- Open **Istudio**, load a portrait photo, and select 9 times exposure format, for example **203x152mm HQ**.

For saving paper, you can create a temporary format **203x89mm HQ** for this calibration.

➢ Import the data files **0** to the Linux Registry (Fig 2.6.7 and Fig 2.6.8).

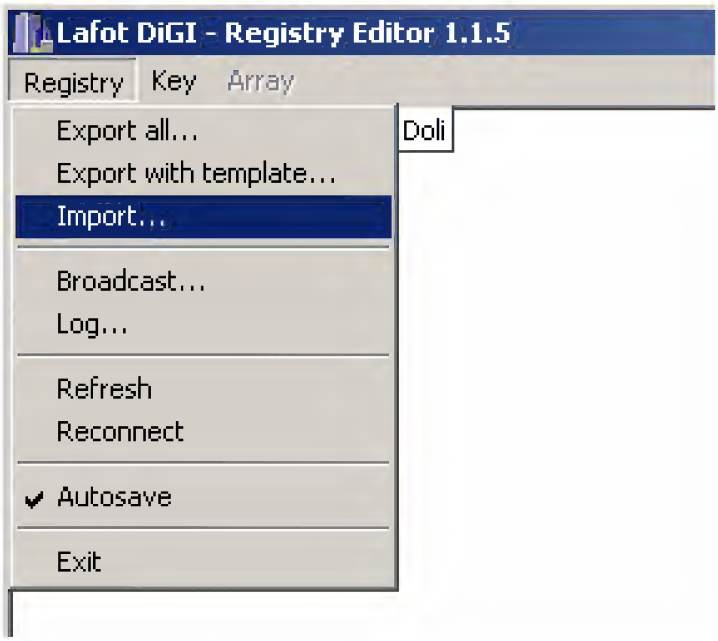


Fig 2.6.7

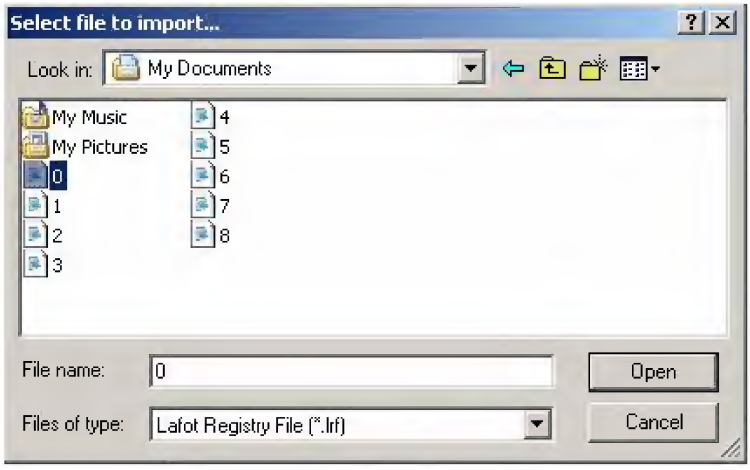


Fig 2.6.8

Click **Open**.

➢ In **Istudio** click **Send** button to send a test print.

Wait until the exposure finish.

➢ Repeat the above steps to send test prints for each data ID.

 After the test prints come out, mark the corresponding ID on the paper immediately.

- Make comparison of the test prints, pick the best one.
- If the result is still not satisfied:
  - Go back to step 1 and to try to make more test data files and the test prints (This is the reason why this method of this calibration is called ring-around).
  - Try to make 2 or 3 value modifications instead of 1 for each time modification of **3X**, **4X**, **5X** and **6X**, **7X**, **8X** in the Linux Registry.
- Import the corresponding data file of the best test print to Linux Registry.

2. Minimize the vertical grid lines.

   By adjusting **01Y, 05Y, 07Y** and **02Y, 03Y, 08Y** value, the vertical grid lines can be minimized.

   The method is similar as above.

   Finally, delete the temporary format **203x89mm HQ** in **maintenance** that you created earlier, otherwise the morning setup will use this format for the printing and then come up the wrong result.

2.7 Uniformity calibration

Purpose: To calibrate the uniformity of color or density to be the same at each district of the photo.

If you print a photo from a neutral grey test film or a neutral grey test file, and the result is uniform neutral grey at each district of the photo, then the density and uniformity of the photo shall be good.

Usually there is a diffuser (mirror box) in film minilab, of which the function is to convert the diffusive light emitted from halogen lamp to coherent light (parallel light), so as to get a uniform neutral grey photo.

There is no diffuser in DL-2300. However the density uniformity result of the photo which is printed from a neutral grey test file is perfect. This attributes to that DL-2300 adopts software control the transmissibility of each LCD liquid crystal particle that is on LCD to simulation the effect of a diffuser.

Mask file records the transmissibility correction of the LCD liquid crystal particles, of which the file extension name is pm.

So the Mask file is a virtual diffuser.

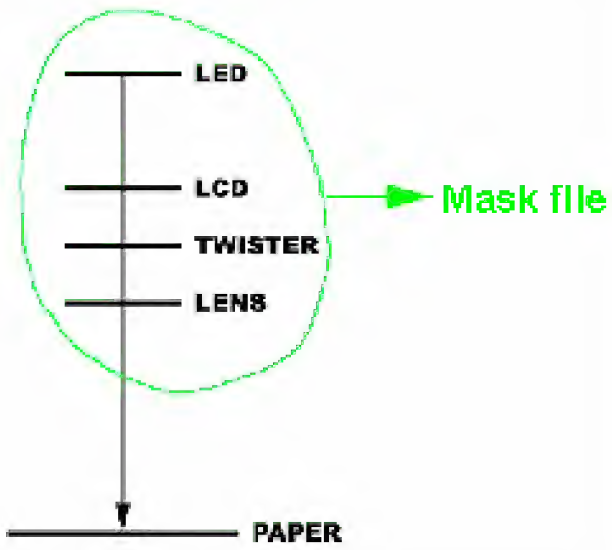


Fig 2.7.1

Mask file is a total compensating result of exposure unit. There 4 lenses in DL2300, so that there are 4 Mask files needed for the printing for each lens (Fig 2.7.1).

The Mask file shall be re-calibrated when the following event occurs:

- Replace LED
- Replace LCD
- Replace LCD Driver board
- Adjust LCD Driver board

- Replace lens
- Slight vertical lines appear on the photos

Tools required:

- A4 or A3 flatbed scanner which is with 24 bit color and 600dpi scanning capability
- **Photoshop software**
- 203mm glossy paper

Preconditions:

- The scanner has been cleaned so that there is no dust or finger mark on it.
- The **Maintenance** > **Calibrations** > **paper characteristic** has been completed for the 203mm glossy paper.
- The scanner has been calibrated if necessary.

The scanner calibration shall be performed only if the deviation of the color or density between the scan image and the scan object are big.

If scanner is good, you can skip this step by just selecting a scanner profile from the list.

Steps of scanner calibration:

➢ On the DL-2300 Windows PC find and run **Scan0.5.2** or **Scan0.5.2BIG**

Which program shall be used depending on the LCD model of your machine.

☞ **Chapter 2 Maintenance** > **Prologue** for identifying the LCD model of your machine

LCD model	Use program
Sony 036	Scan0.5.2BIG
EPSON	Scan0.5.2
Sony 028	Scan0.5.2

In the following steps we will use Scan0.5.2 as example.

➢ Click **Calibrate scanner** to entering the following interface:

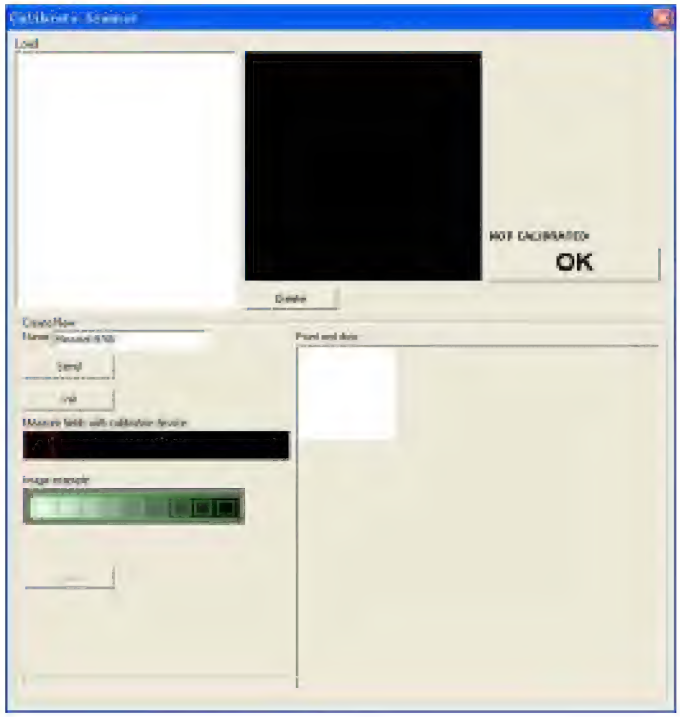


Fig 2.7.2

- In **Name** key in a file name for the new scanner profile, for example **my scanner**.
- Click **send** to send a test print.

The test print will be printed by the default format of current cassette. You can set a default format for each cassette:

- Open **Maintenance**.
- Select **paper roll installation** then click **Next**.
- Select a cassette ID.
- Select a default format for the cassette ID you have selected.

- After the test print comes out, scan this test print by 300dpi and 24bit color mode, and then save as a bmp file.
- Crop and rotate the scan image by **Photoshop** as Fig 2.7.3, and then **Save**.

Fig 2.7.3

- Go back to **Scan052**, Click **Init** to import the scan file, comes up the following interface

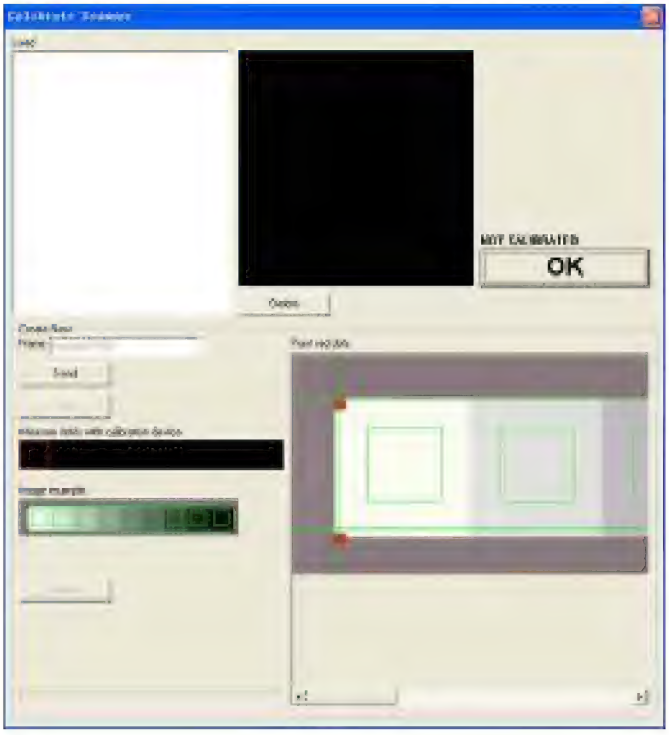


Fig 2.7.4

- Measure 9 grey scales of the test print by densitometer one by one from left to right.
- Click **Create** after finish, **myscanner.tsc** file will be created.
- On the top left of the window highlight **myscanner.tsc** and then click **OK** (Fig 2.7.5).

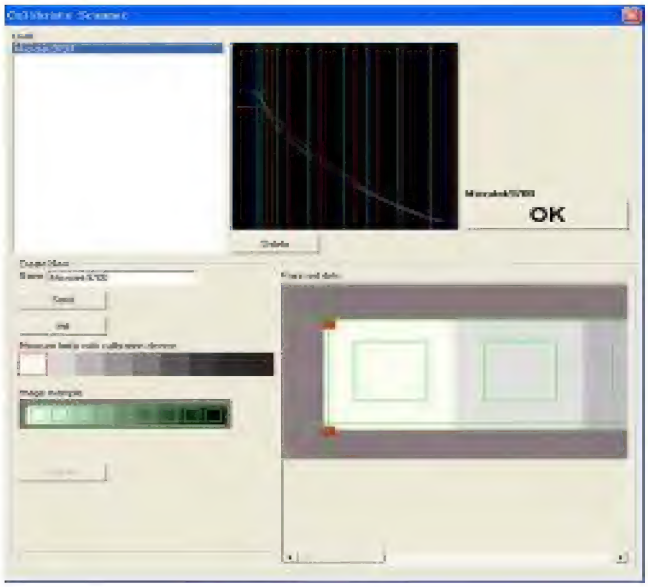


Fig 2.7.5

Steps:

1. Create formats for Mask calibration.

   In **Maintenance** > **Formats** create a new 203X305mm format, do not select **HQ**, and name **Mask calibration**.

2. Open **mesg** to monitor the calibration.
   - On the DL-2300 machine Windows PC Click **start**.
   - Click **Run**.
   - Key in **\\10.1.1.1\win-software** and then enter.
   - Run **mesg**.

3. Create Mask file for lens 001.

   a. Set Mask file of lens 001 to be **tabkor0.prn**.

   tabkor0.prn is original Mask file without correction.
   - On the DL-2300 machine Windows PC click **start**.
   - Click **run**.
   - Key in **\\10.1.1.1\win-software** and then enter.
   - Run **lregedit**.
   - Specify **etc/lens/001/tabkor**.
   - In **Value** key in **tabkor0.prn** (Fig 2.7.6).

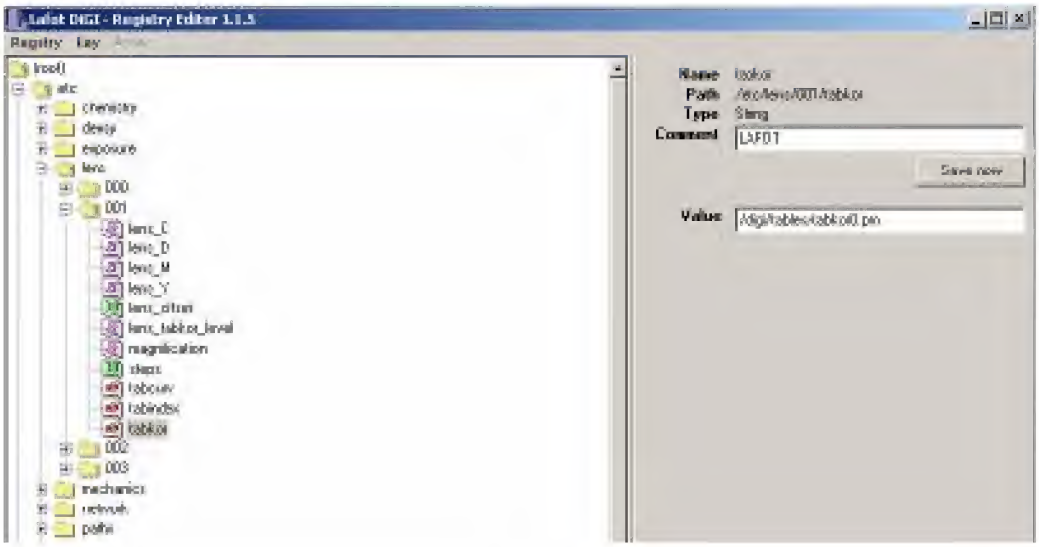


Fig 2.7.6

   - Click **save now**.

   b. Densy.
   - On **Densy** tab under **Lens** select **lens 001** (Fig 2.7.7).
   - Select **Mask calibration** under **Format** (Fig 2.7.7).

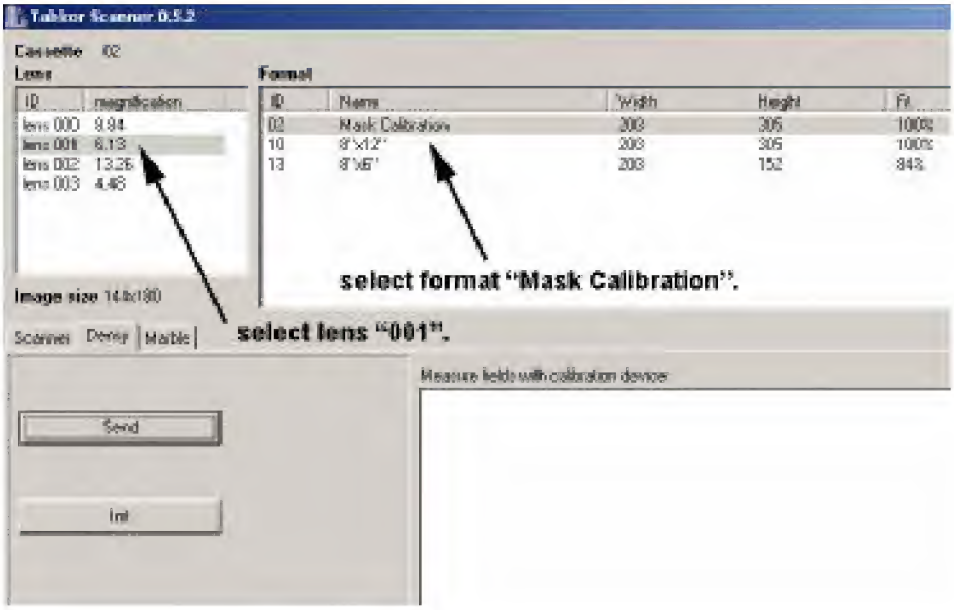


Fig 2.7.7

- Click **send** to send a test print.
- Click **init**, comes up the following interface:

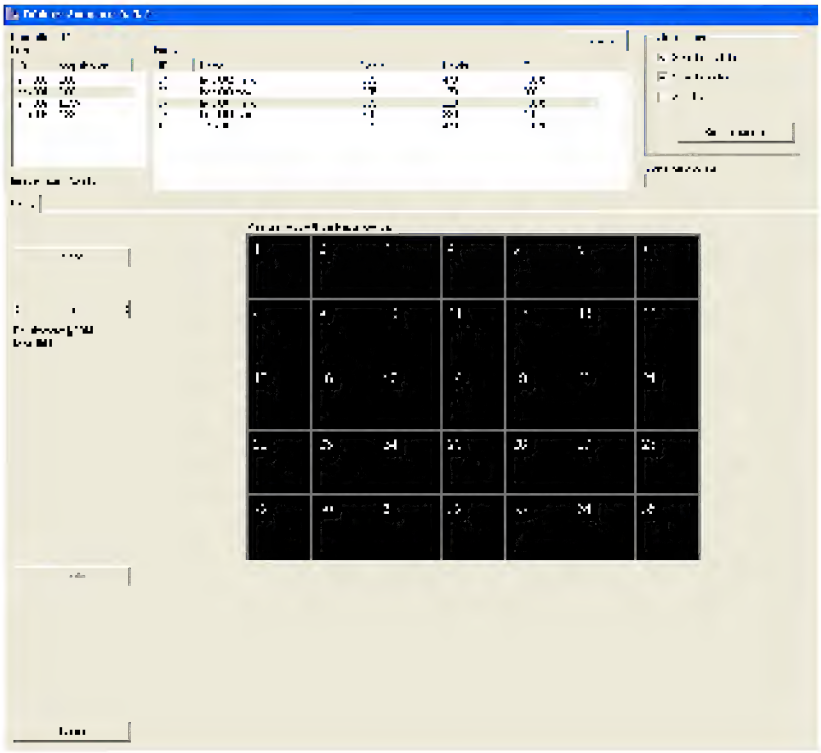


Fig 2.7.8

- After the test print coming out, measure the 35 dots as the sequence by densitometer.
- Click **create**, it comes up the following window.

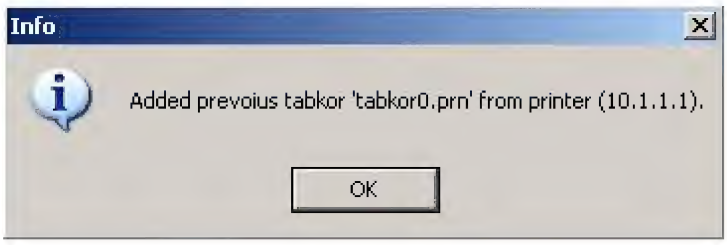


Fig 2.7.9

This message means the computer has read the previous mask file.

➢ Click **OK**.

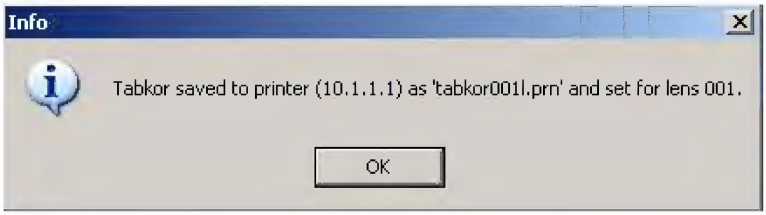


Fig 2.7.10

This message means the computer has created a new mask file for the lens 001 and saved this new file to the Linux Server.

➢ Click **OK**.

➢ Now the computer is asking to save this new file to Windows PC as a backup, just select a directory of Windows PC (Fig 2.7.11).

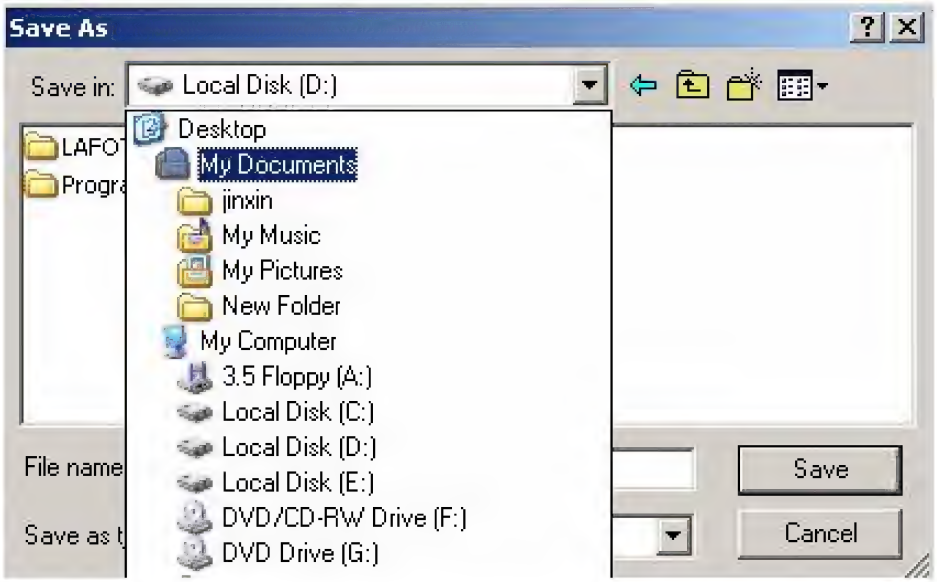


Fig 2.7.11

➢ Click **Save**.

➢ Click **Send** to send a new test print, repeat the procedure 3 times.

c. Scan

➢ On **Scanner** tab of **Scan052**, under **Lens** select **Lens 001**.

- Select **Mask calibration** under **Format**.
- Click **send** to send a test print.
- After the test print comes out, scan it in 600dpi and 24bit color mode.

  When scanning, the scanner must avoid shaking.
- Save the scan image as a 24bit bmp file.
- Open the scan image in **Photoshop**.
- Use **crop** tool to crop the scan image to the right size which is with a little white border.
- On Keyboard press Ctrl + Alt + 0 key to view the image in actual pixel size.
- Use **Clone stamp** tool to remove the dusts or scratches or other defects of the scan image which is not caused by exposure.

  Make sure it is not caused by exposure, then you can remove it.
- Save the image after finish.

  You can name the file as 001s1 or 001s2 etc., which means this scan image is printed by lens 001 and this is the first or the second scan so that the file name is logical.
- On **Scanner** tab of **Scan052**, check the **scan resolution that** must be **600** dpi, and then click **init**.
- Specify the scan image file, and then click **open**.
- Wait one minute, and the following information will appear (Fig 2.7.12):

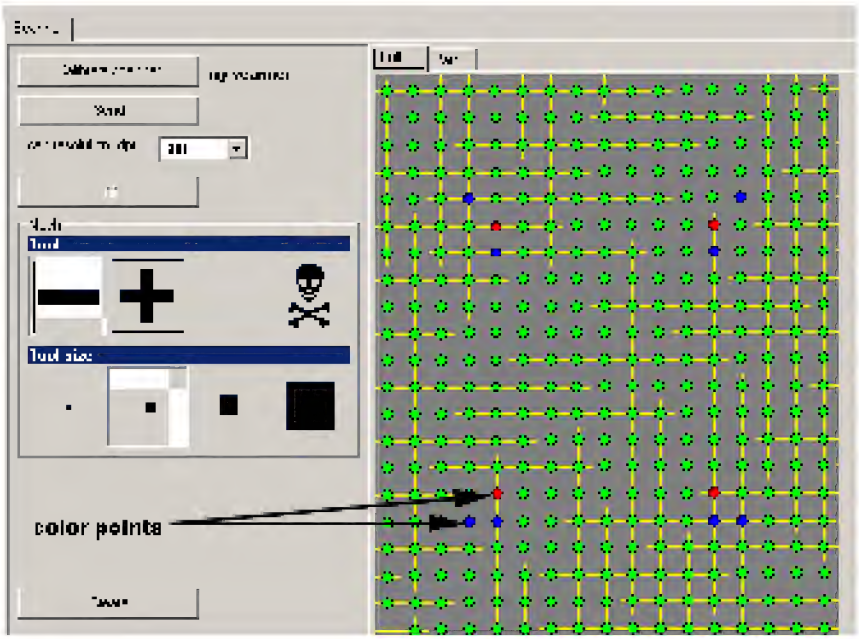


Fig 2.7.12

- You shall see the color points. The computer recognizes the scan image direction by the red and blue points that come from the test file so that you do not need to worry about the direction of the test print during the scan.
- If the red or blue points are missing, usually it is caused by the shaking during the scan, in this case send a new test print and then scan again.

➢ Click **Create** and wait one minute.

➢ Just click **OK** and backup the new Mask file to the Windows PC.

The meaning of following message is the same as it was in **densy** procedure.

➢ Repeat the above procedure until you are happy with the uniformity result.

- From the 4th time of the repetition you can scan the test print then **init** the scan image 2 times and then **send** another test print to save time.
- The Mask files are saved in **\\10.1.1.1\tables** folder, the value of **tabkor** which is under **etc/lens/00x** in the Linux Registry only indicate a file name (Fig 2.7.14).
- While printing, the computer will select the proper lens depend on the format automatically, and in **lregedit** it will go to **etc/lens/00x/tabkor** to see which Mask file shall be used for this lens, and then go to **\\10.1.1.1\tables** to read the corresponding file for printing (Fig 2.7.13).

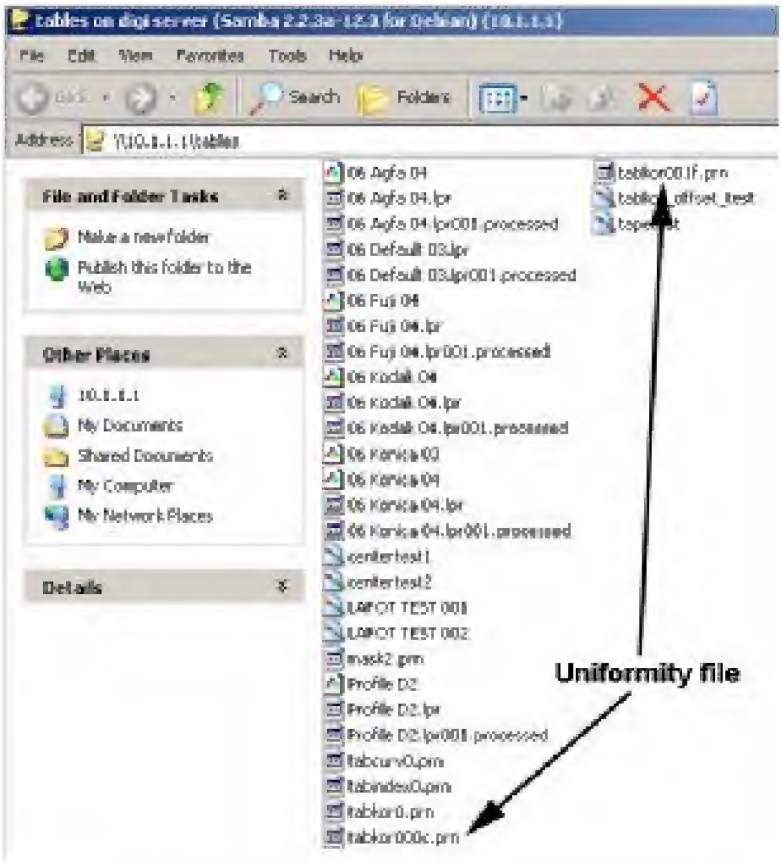


Fig 2.7.13

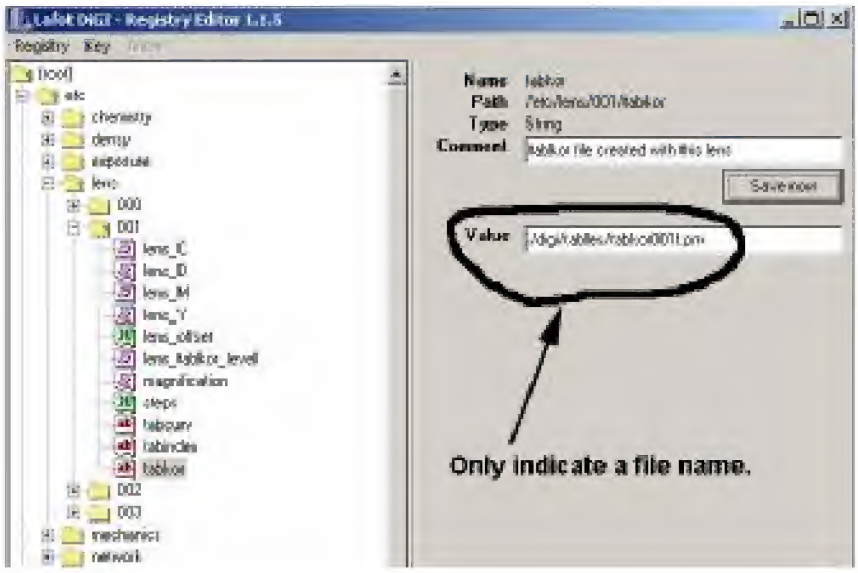


Fig 2.7.14

- If the computer can not find the corresponding file in the **\\10.1.1.1\tables** you will see a warning message below:

Fig 2.7.15

In this case you shall copy the corresponding tabkor file which you have backup on the Windows PC when being asked by **Scan052** during the calibration procedure to the **\\10.1.1.1\tables**.

4. Create Mask file for lens 000.
   a. Apply the Mask file of lens 001 to lens 000.
      - On the 2300 machine Windows PC click **start**.
      - Click **Run**.
      - Key in **\\10.1.1.1\win-software** and then **enter**.
      - Run **lregedit**.
      - Specify **etc/lens/001/tabkor**.
      - Highlight the value, right click mouse and then select **copy**.
      - Specify **etc/lens/000/tabkor**.
      - Highlight the value, right click mouse and then select **paste**.
      - Click **save now**.

Next time computer will use the Mask file of lens 001 for lens 000 printing.

b. Complete the **densy** procedure for lens 000.

Procedure is about the same as **Step 3 > b**.

c. Complete the scan procedure for lens 000.

Procedure is about the same as **Step 3 > c**

5. Create Mask file for lens 003.

Procedure is similar to **Step 4**

If you do not use 3 inches or 4 inches paper, then you can skip this step.

6. Create Mask file for lens 002.

a. Apply the Mask file of lens 000 to lens 002.

- On the 2300 machine Windows PC click **start**.
- Click **Run**.
- Key in **\\10.1.1.1\win-software** and then **enter**.
- Run **Iregedit**.
- Specify **etc/lens/000/tabkor**.
- Highlight the value, right click mouse and then select **copy**.
- Specify **etc/lens/002/tabkor**.
- Highlight the value, right click mouse and then select **paste**.
- Click **save now**.

Then next time computer will use the Mask file of lens 000 for lens 002 printing.

b. Complete the **densy** procedure for lens 002.

Procedure is about the same as **Step 3 > b**.

- No need scan for lens 002.
- If the 35 points image is not center, you can control as the table below (Fig 2.7.18):

	Be control by variable	Location	Description

Up and down center	**steps**	In the Linux Registry **etc/lens/002** (Fig 2.7.16)	To move the image upwards, Increase **steps** value (for example +10). To move the image downwards, decrease **steps** value.
Left and right center	**Main tape centering offset**	**Maintenance > service > other** (Fig 2.7.17)	To move the image rightwards, increase **Main tape centering offset** value (by mm), To move the image leftwards, decrease **main tape centering offset** value.

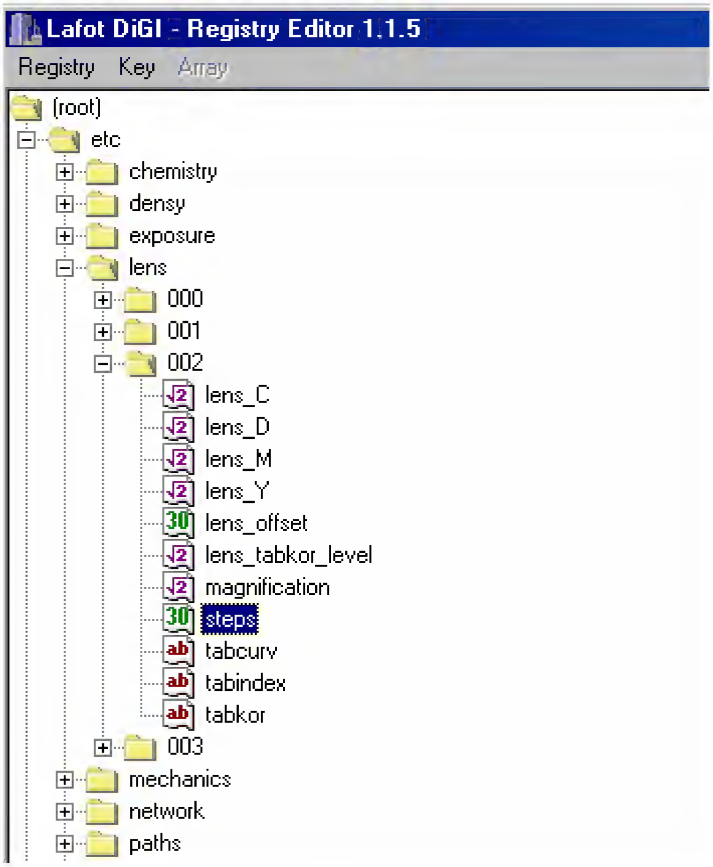


Fig 2.7.16

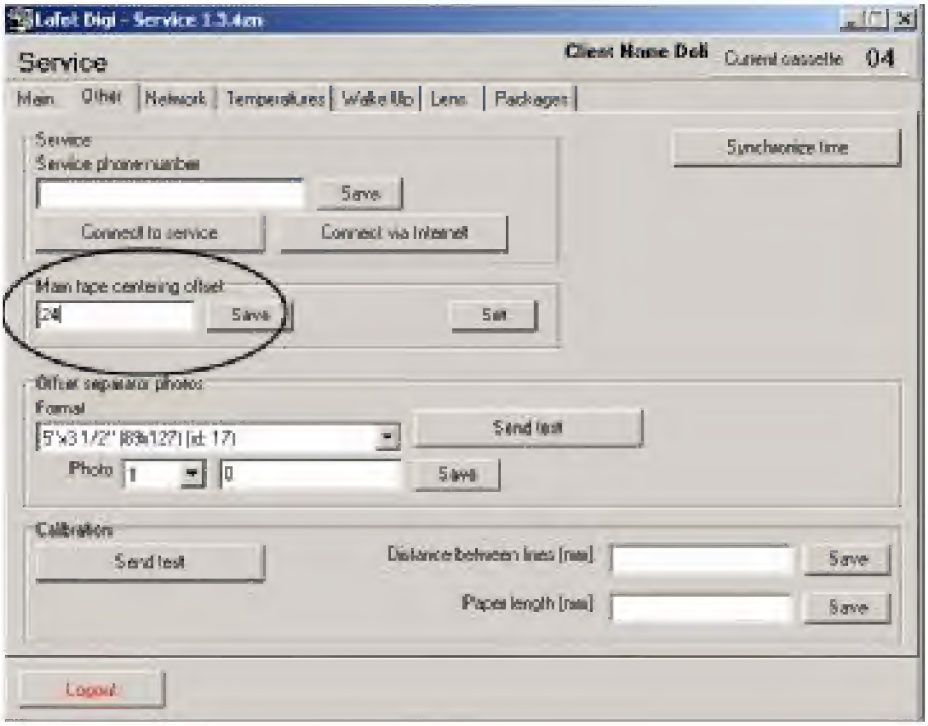


Fig 2.7.17

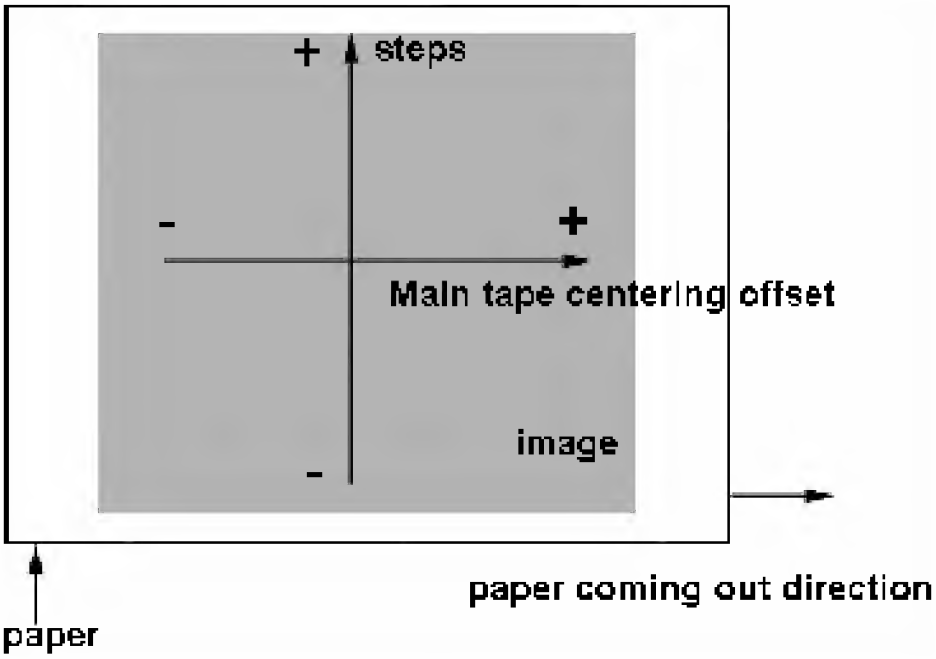


Fig 2.7.18

Write down the original value before changing, and restore the value after **Densy** calibration finish. Otherwise you may need to redo the **ABCD** calibration for all the formats.

7. Delete the unused Mask files in Linux server.

In **Scan052** Click **Remove unused** to delete all the unused files in Linux server (Fig 2.7.19).

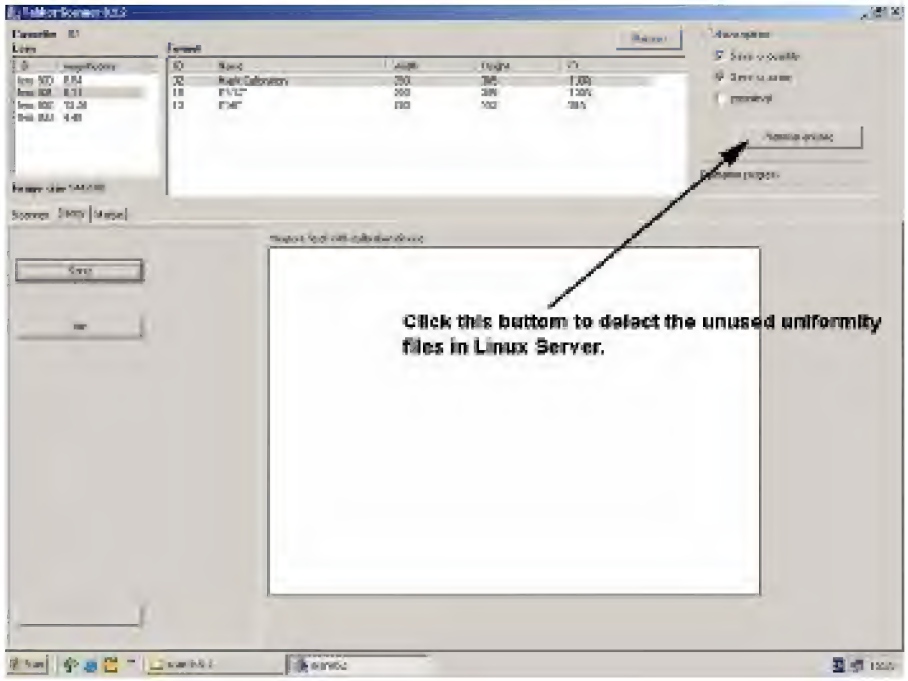


Fig 2.7.19

Linux system will work more efficiently after the rubbish files have been cleaned.

Quick Mask calibration for user:

For user, a quick procedure could be used for completing the Mask calibration in 2 hours.

- Just continue the **Scan** calibration for lens 001 until satisfied.

Step3 > c

- Apply the mask file of lens 001 to lens 000.

Step4 > a

- Complete **densy** and **Scan** calibration for lens 000.

Step3 > b

Step3 > c

- Apply the mask file of lens 000 to lens 002.

Step6 > a

- Complete **densy** calibration for lens 002.

Step3 > b

If useing 3 inches or 4 inches paper, then:

- Apply the mask file of lens 001 to lens 003.

Step4 > a

- Complete **densy** and **Scan** calibration for lens 000.

Step3 > b

Step3 > c

- Deleted the unused Mask files in Linux server.

2.8 Paper length calibration

Purpose: To calibrate the actual paper length of the photos and set length of its corresponding format to be the same.

- Usually this calibration has been done in the factory, no need to do again for the user.
- Since different paper have different thickness, this calibration can not ensure the actual paper length of each format to be corrected. In this case, try to adjust the paper length in **maintenance** -> **formats** -> **edit** manually.

Tools required: Ruler with 1mm definition.

Precondition:

The test print of this calibration will be sent in default format.

- 152mm paper has been loaded in current cassette.
- The 152x254mm format has been set as the default format of current cassette.
  - Create a 152x254mm new format in **Maintenance**.
  - Set this new format as default format for current cassette at the last step of **Maintenance** -> **Paper roll installation**.

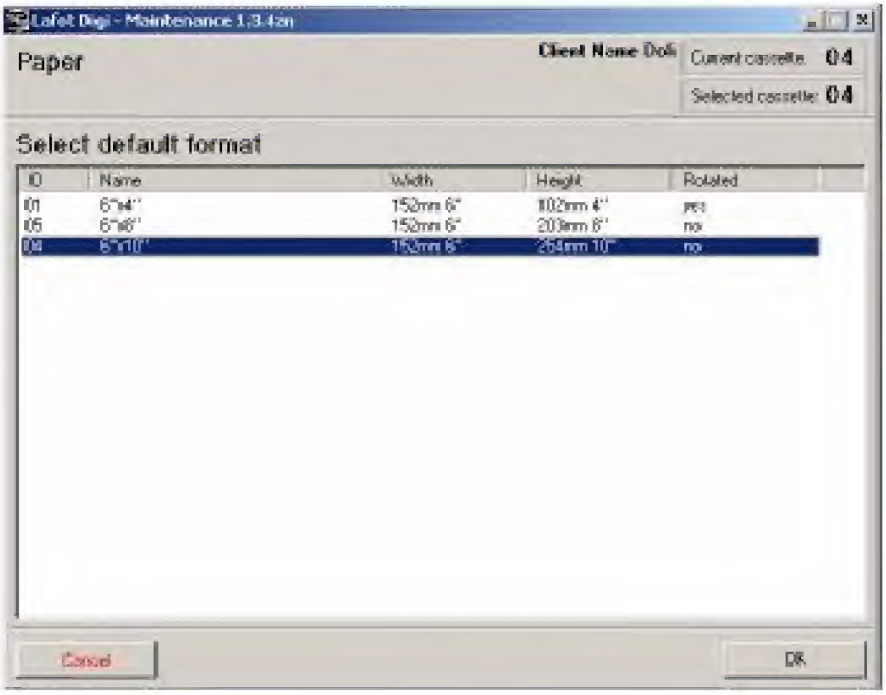


Fig 2.8.1

Select format 152x254mm, then click **OK**.

Steps:

- Run **Maintenance**.
- Click **Service** then on **Other** tab and then under **Calibration** click **Send test**.

Fig 2.8.2

- Measure and input the numerical value (mm) of **Distance between lines** and **Paper length** of the test print to the corresponding box.

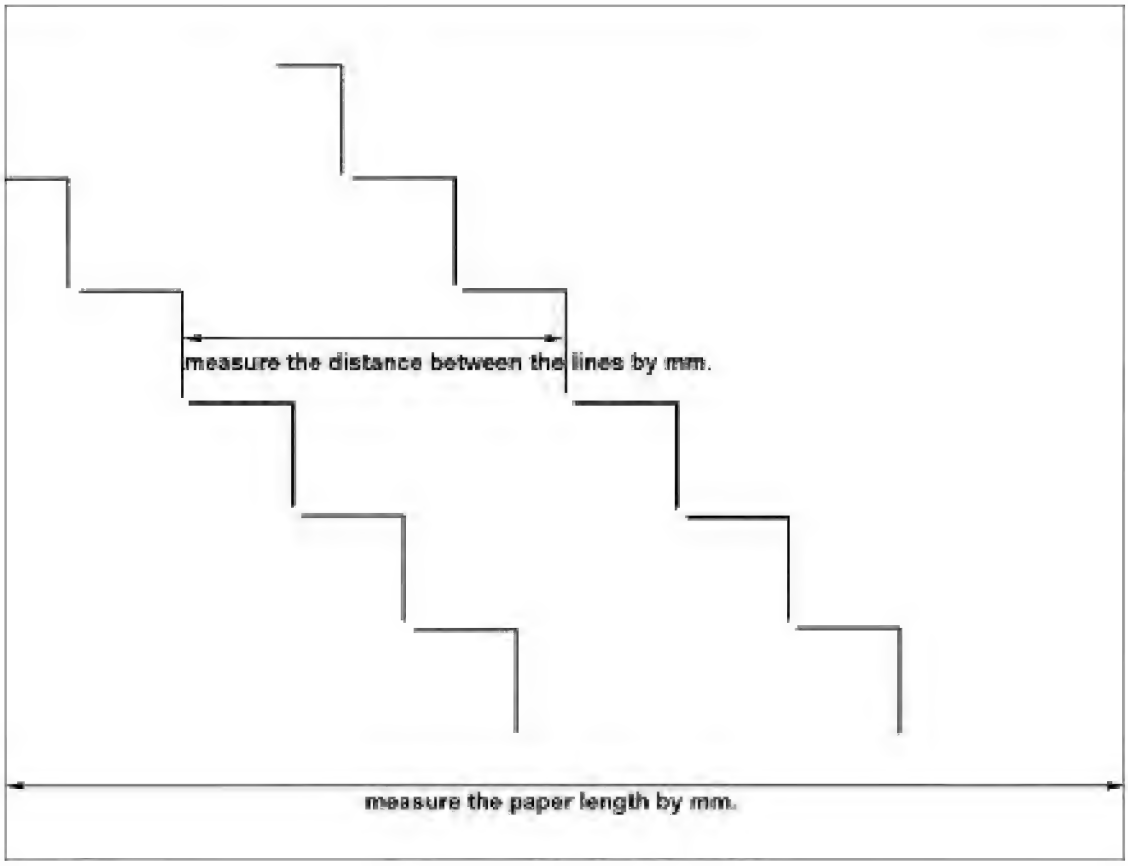


Fig 2.8.3

- Click **Save** after modifying the value.

2.9 Image magnification calibration

Purpose: To calibrate the actual image proportion of the photos to be the same as its preview in **Istudio**.

Tools required: Ruler with 1mm definition.

Precondition:

Same as **2.8 Paper length calibrations**

Steps:

- Run **Maintenance**.
- Click **Service** and then under **Lens** tab click **Send all**.

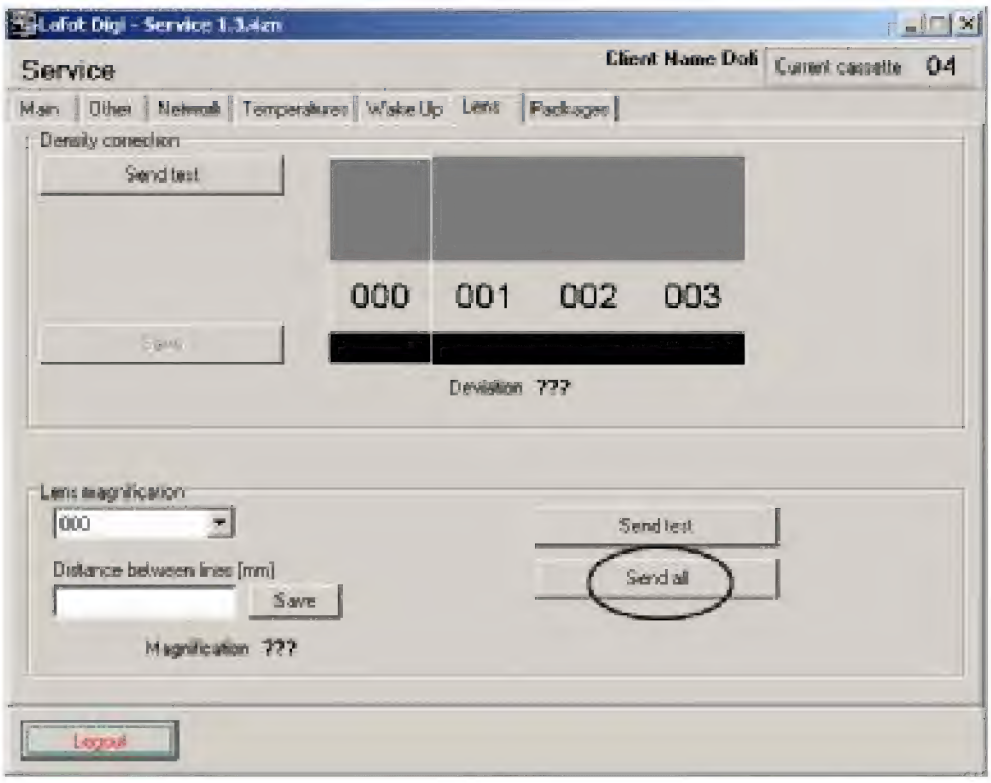


Fig 2.9.1

- After the test prints comes out, pick up the test print for lens 000 first, measure the distance between lines with a ruler as Fig 2.9.2:

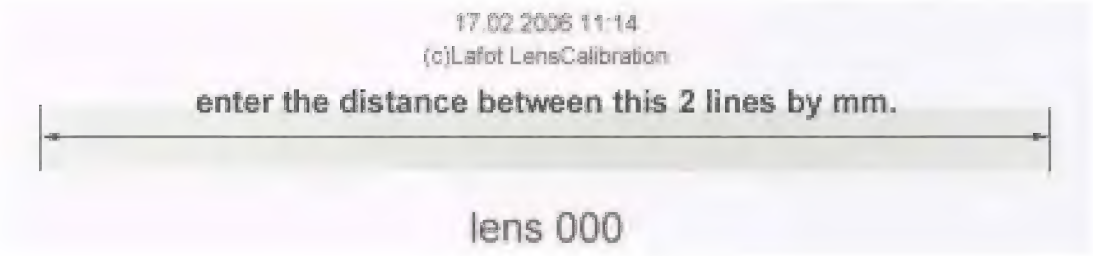


Fig 2.9.2

- Under **Lens magnification** select **000**.
- Key in the value by mm in **Distance between lines[mm]:** and then click **Save**.
- Repeat for lens 001.

The data of this calibration is saved in the Linux Registry under:

etc/lens/000/magnification

etc/lens/001/magnification

The value can be modified manually by user.

To increase the image proportion of the photo, decrease the **magnification** value of the corresponding lens, for example: -0.03 or -0.05,

To decrease the image magnification of the photo, increase the **magnification** value of the corresponding lens.

Don't forget to click **Save now** after modifying the value.

2.10 Replenishing system setup

Purpose: Setup the replenishing system to meet the requirement of the chemistry instruction.

Tools required: Measuring cup

Steps:

1. Measure the flux of the CD replenishing pump.

   - Remove the left side cover of the machine, and then put the replenishing pipe outlet to the measuring cup.

Fig 2.10.1

   - On Linux LCD panel, press any button of the top 4 buttons to enter following interface:

Fig 2.10.2

➢ Press the button on the left to **Pumps** to enter the following interface:

Fig 2.10.3

➢ Press the button on the right to **regenerations** to enter the following interface:

Fig 2.10.4

➢ Press the button on the left to **developer** to run CD replenishing pump 30 seconds.

- The replenishing pump runs 30 seconds and then stops automatically for each time test.
- For the first time measurement, if there is a little air inside the pipe, throw away the chemistry and then test again.

➢ After the pump stops, repeat running the pump, all together run the pump for 5 times.

➢ Carefully put the replenishing pipe outlet back to the tank, and then read out the total chemistry value of the measuring cup.

➢ Calculate the average value of the CD replenishing flux for 30 seconds by dividing the total value by 5.

2. Input the CD replenishing flux into **Maintenance**.

➢ Run **Maintenance**, and select **Regeneration pump efficiency** and then click **Next**.

➢ Input the CD replenishing flux value in **Developer** and then click **OK**.

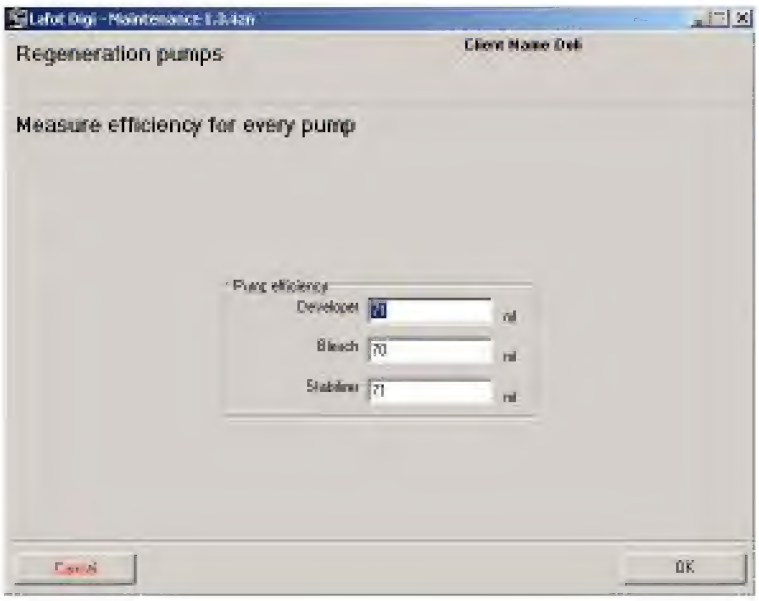


Fig 2.10.5

3. Repeat for BF.
4. Repeat for STB.
5. In **Maintenance** > **Regeneration doses** setup the Regeneration does value depending on the chemical specification you are using.

Fig 2.10.6

6. Please delete this section!! In **Maintenance** > **Regeneration doses** setup the

Regeneration does value depending on the chemical specification you are using.

Fig 2.10.6

If the daily print quantity is small, and you want to keep the chemical active, the **Regeneration doses** value could be increased a little bit.

2.11 Color management-from monitor to photos

Purpose: to ensure the color of the photos look as close as its preview on the monitor.

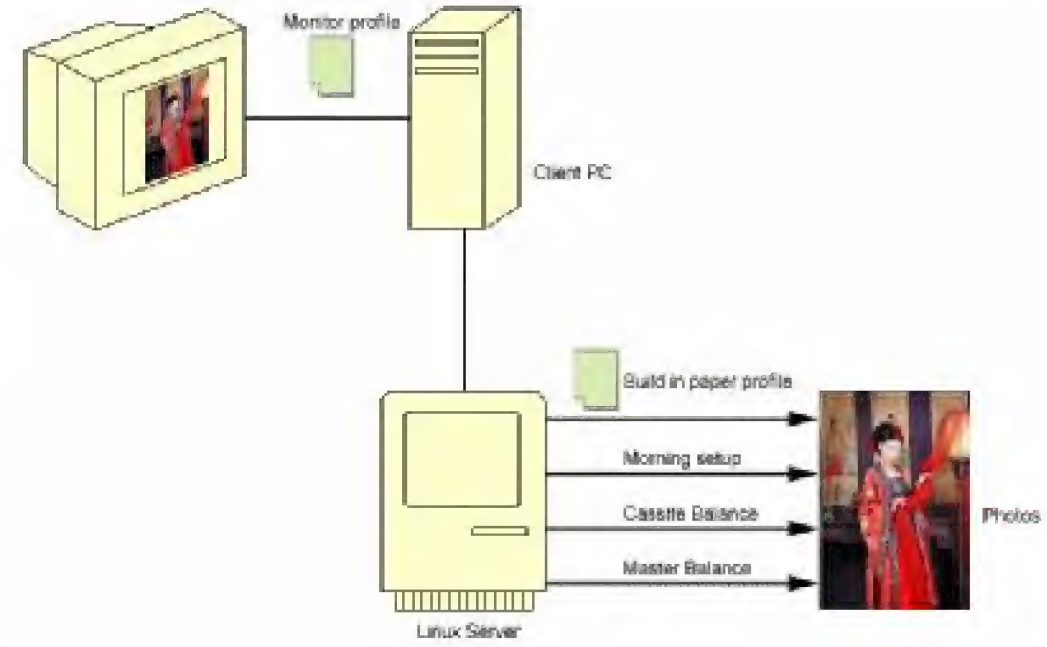


Fig 2.11.1

Preconditions:

- Calibration with Densitometer has been performed..

3.2 DS-25 densitometer calibration

- Standard ambient light has been installed in the Studio.

It is recommended to use Philips true color fluorescent lamp as the standard ambient light of the studio, ask Philips sales and service people for more information about the fluorescent lamp selection and installation.

Work flow:

1. Calibrate monitor.

- If the monitors color fidelity is good and support sRGB color management, set the monitor to the sRGB mode.

  - To see if the monitor's color fidelity is good, Open **Photoshop**, the background of

Photoshop shall appear to be neutral grey.

- If the monitor supports sRGB color management, sRGB mode can be set in the monitor adjustment menu, that is usually under **color management**.
- sRGB is the working color space of **Istudio** and most digital camera.

- If the monitor color fidelity is not good (for example: old monitor) or it does not support sRGB color management, first on the monitor adjustment menu set the monitor color management to 6500K, and then create an icc profile for the monitor by **Adobe Gamma** or other software.

☞ Refer to related books of **Photoshop** for **Adobe Gamma**.

2. Register paper profiles.

   Paper profiles have been created in the factory for each brand and built in the Linux server. For user, just select the correct paper profiles for the cassettes when register the cassettes, for example: cassette 01 is loaded Kodak paper, so that you shall register cassette 01 as Kodak band.

   ➢ Run **maintenance**.

   ➢ Select **paper roll installation** and then click **Next**.

   ➢ Select cassette numbers for **registration**.

   ➢ Select paper profile for the cassette number which you have just selected.

   ➢ Complete other registrations.

   If the paper profiles is deleted or lost by accidental error, the corresponding paper brand will not be available in the list of **Paper roll installation**. In this case, backup all the calibration data of the machine, reinstall Linux system with Linux recovery CD, and then restore all the calibration data.

   ☞

   - **3.3 Data backup and restore**
   - **3.4 Linux system backup and recovery**

3. Complete the morning setup.

   ☞ **2.1 Morning setup**

4. Print sample photos, compare the color between the photos and the monitor preview. If still not satisfied, use **Cassette balance** or **Master balance** for ultimate control.

 The color could be managed from monitor to photos but they will not be 100% the same. Photos and monitor interpret color in different ways. Usually the photos are more brilliant than the monitor preview since the photos belong to another color space which is bigger than sRGB and the color has been transferred to a wider range than sRGB during the printing and processing.

- To use **Cassette balance**:
  - Run **Maintenance**.
  - Select **Cassette balance** and then click **Next**.
  - Select cassette number and then click **Next**.
  - Change the values of C, M, Y, D, for example: + or -0.01.
  - Click **OK**.
- To use **Master balance**:
  - Run **Maintenance**.
  - Select **Master balance** and then click **Next**.
  - Change the values of C, M, Y, D, for example + or -0.01.
  - Click **OK**.

  After modifying the values, print sample photos again and repeat the above procedure until satisfied.

- **Cassette balance** only affects the color of the photos of the given cassette.
- **Master balance** affects the color of the photos of all the cassettes.
- Neither **Cassette balance** nor **Master balance** affects the test prints of the morning setup.
- Either **Cassette balance** or **Master balance** can be used for quick color control especially for black and white photos.

3

Chapter 3 Service

This chapter contains information for service personnel.

Prologue

Take time to read the manual and study the machine until you understand everything well before you perform the service.

Ask somebody for help if you are not confident with the things you are going to do to avoid serious problems.

3.1 DS-25 Densitometer installation (See Appendix--DL-202Ps densitometer)

1. Hardware installation.

   Connect the densitometer to DL-2300 Windows computer USB port.

Reference the manuals saved under **OPTECH** -> **MANUAL** folder.

2. Check COM port number.

   - On the DL-2300 machine Windows PC, find and open **OPTECH** -> **DS-25 SOFTWARE** folder.
   - Run **DS-25 USB**.
   - Click **Yes**.
   - You will see the COM port number on the window below:

Fig 3.1.1

3. Set COM port number in Linux server.

   - On the DL-2300 machine Windows PC Click **Start**.
   - Click **Run**.
   - Key in **\\10.1.1.1\win-software** and then **enter**.
   - Run **config**.
   - Set COM port number in **Calibration port**.

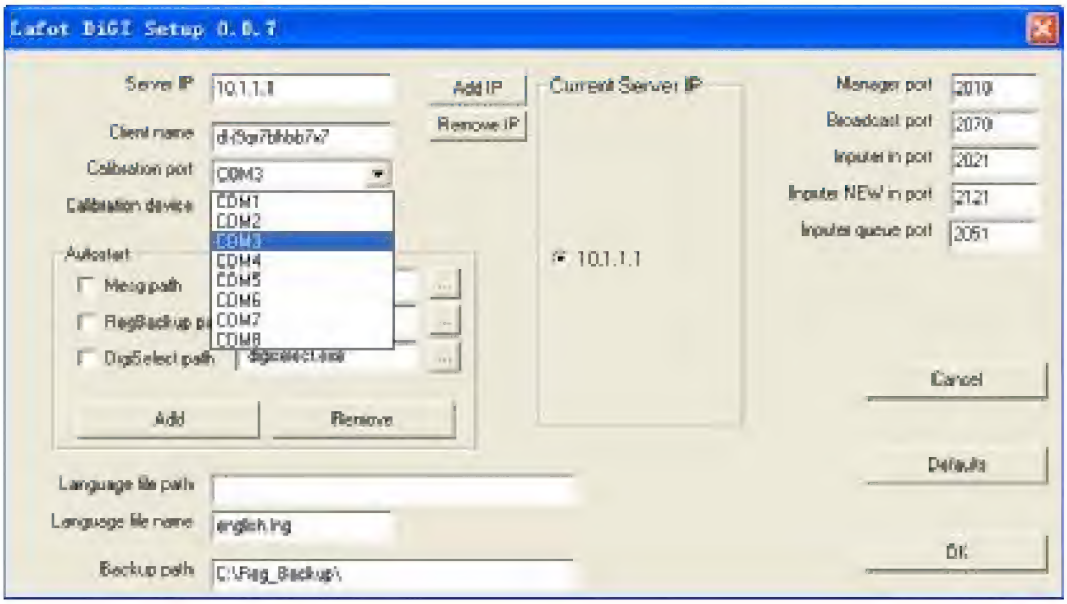


Fig 3.1.2

➢ Click **OK**.

3.2 DS-25 Densitometer calibration

Purpose: To make sure the measurement value of the densitometer is reliable.

Tools required: DS-25 densitometer calibration tablet.

Fig 3.2.1

Steps:

- Run **DS-25 USB**.

Check **CAL-LO** and **CAL-HI** value. They must be same as the value marked on the **Calibration Tablet**, otherwise the corresponding **CAL-LO** and **CAL-HI** value of the Calibration Tablet shall be entered.

Fig 3.2.2

- Make measurement of **LO-CAL** (white) field on the **Calibration Tablet**.


Do not lift densitometer after measurement.

Wait about 10 seconds until hearing continuous repeated “beep beep” sound.

After hearing the sound, densitometer must be lifted.

- Make measurement of **HI-CAL** field on the **Calibration Tablet**.


After measurement has been made, densitometer must be lifted.

- Click **send**.

3.3 Data backup and restore

Purpose:

- To backup the calibration data to prevent unexpected data loss.
- To restore the calibration data in case unexpected data loss occur.

Backup data every time before and after a major calibration is performed.

Steps of data backup:

1. On DL-2300 machine Windows PC create a new folder, name **data backup**.
2. Backup Linux Registry.
   - On the DL-2300 machine Windows PC click **Start**.
   - Click **Run**.
   - Key in **\\10.1.1.1\win-software**, and then **enter**.
   - Run **Iregedit**.
   - On the left top of the window click **Registry**.
   - Click **Export all…**and then wait for a few seconds.

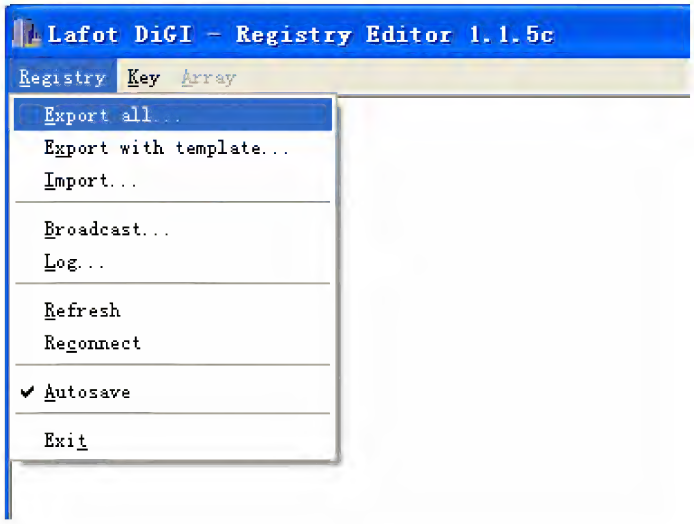


Fig 3.3.1

   - Specify **data backup** folder which you have just created, click **OK**.
3. Backup Mask files.
   - On DL-2300 machine Windows PC, click **Start**.
   - Key in **\\10.1.1.1\tables** and then **enter**.
   - Select all **.prn** files.
   - Copy and paste these files to **data backup** folder.

Steps of data restore:

1. Restore Linux Registry.
   - On DL-2300 machine Windows PC, click **Start**.
   - Click **Run**.
   - Key in **\\10.1.1.1\win-software**.
   - Run **Iregedit**.
   - On the left top of the window click **Registry**.
   - Click **Import…**.
   - Specify the data file which you have backed up in the **data backup** folder, click **Open**, and then wait a second.
2. Restore Mask files.
   - On the DL-2300 machine Windows PC, click **Start**.
   - Key in **\\10.1.1.1\tables** and then enter.
   - **Copy** and **paste** the Mask files which you have backed up in the **data backup** folder to **\\10.1.1.1\tables** folder.
3. Completion
   - Run **Maintenance**.
   - Click **Service**, and then on **Other** tab double click the cassette number:

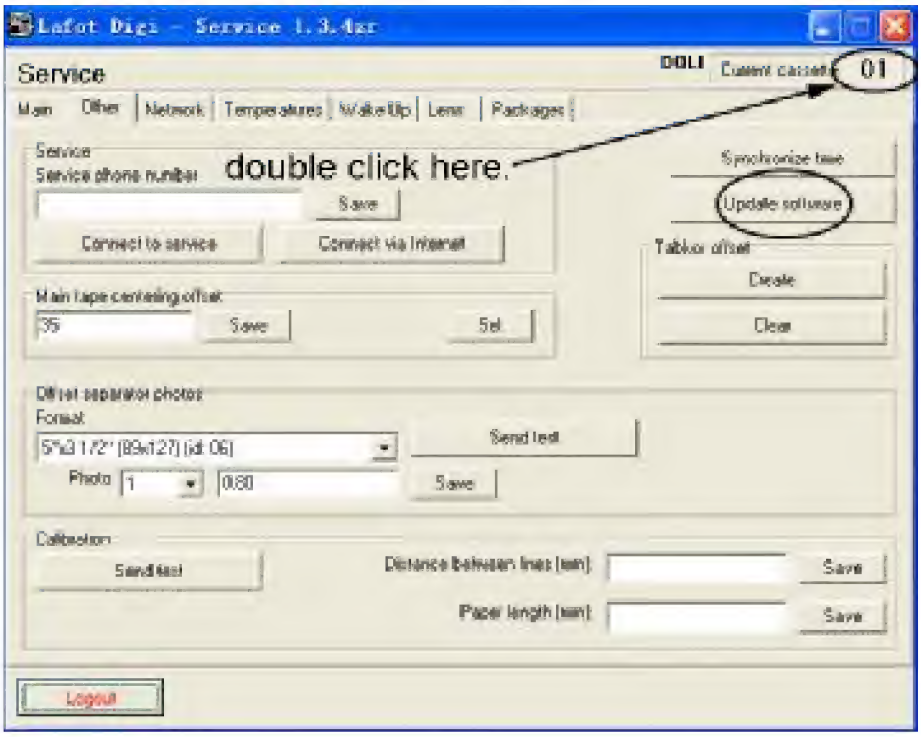


Fig 3.3.2

- Click **Update software**, and then wait 5 minutes.

3.4 Linux system backup and recovery

Purpose:

- To make a whole Linux system backup by creating a Linux recover CD.
- To restore Linux system from Linux recovery CD.

Linux recovery CD is an image of the hard disk of Linux server. It includes all of the calibration data of the machine (Fig 3.4.1).

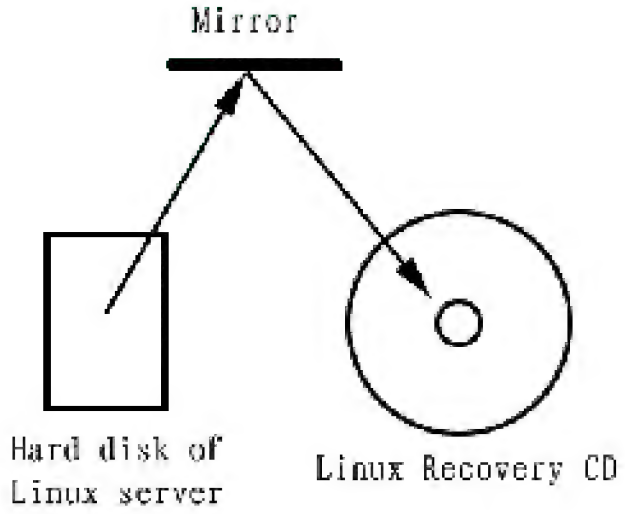


Fig 3.4.1

Precondition: **Nero** has been installed to the DL-2300 machine Windows computer.

Steps of Linux system backup:

- Run **maintenance**.
- Click **Service**, and then under **Main** tab click **Backup copy** (Fig 3.4.2).

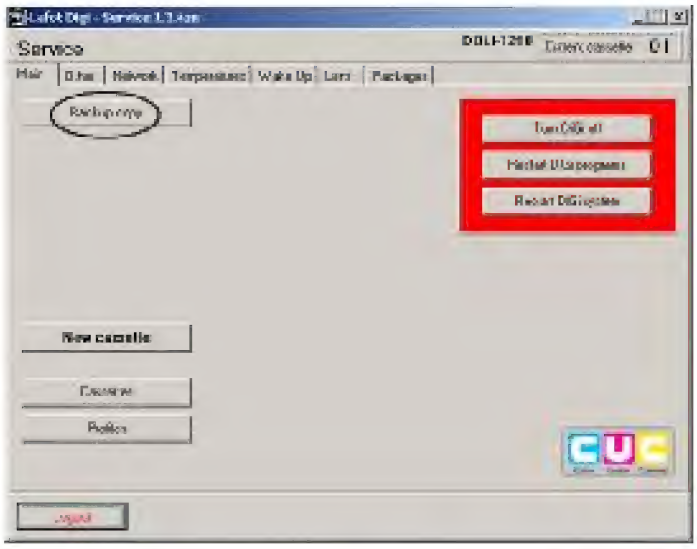


Fig 3.4.2

- Wait about 10 minutes; do not do anything to the machine.
- On the DL-2300 Windows PC, click **Start**.
- Click **Run**.
- Key in **\\10.1.1.1\queue** and then **enter**.
- Cut and paste the **backup.iso** file to Windows PC.

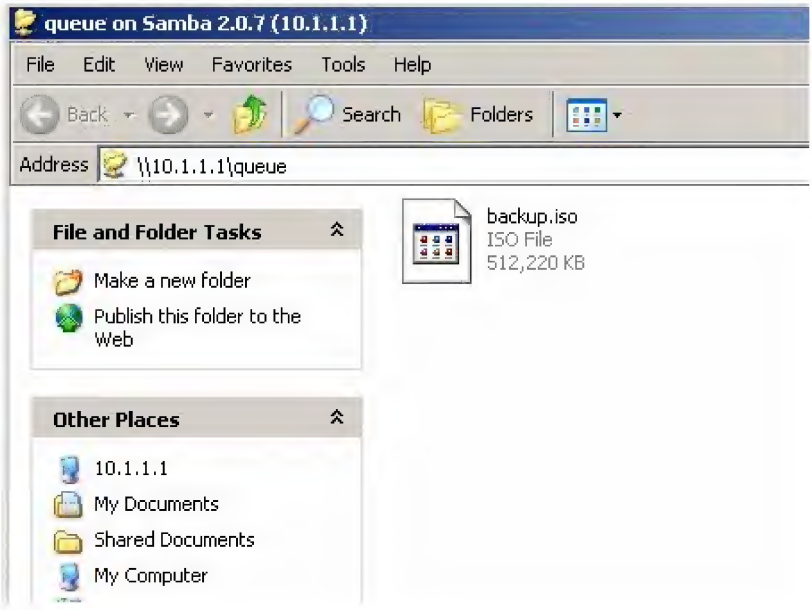


Fig 3.4.3

- Burn this file to a blank CD by **Burn image...** of **Nero**.

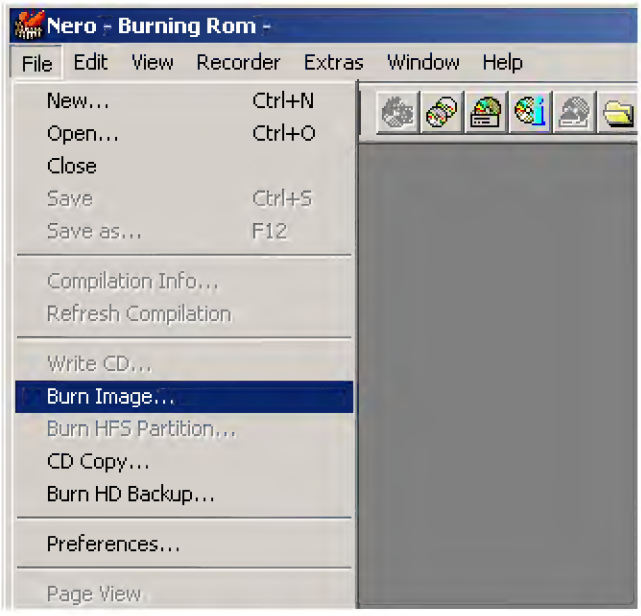


Fig 3.4.4

Steps of Linux system recovery:

Precondition: The **BIOS** of the Linux Server motherboard must be configured as below (Fig 3.4.5, Fig 3.4.6, Fig 3.4.7, the BIOS interfaces could be different depending on the motherboard):

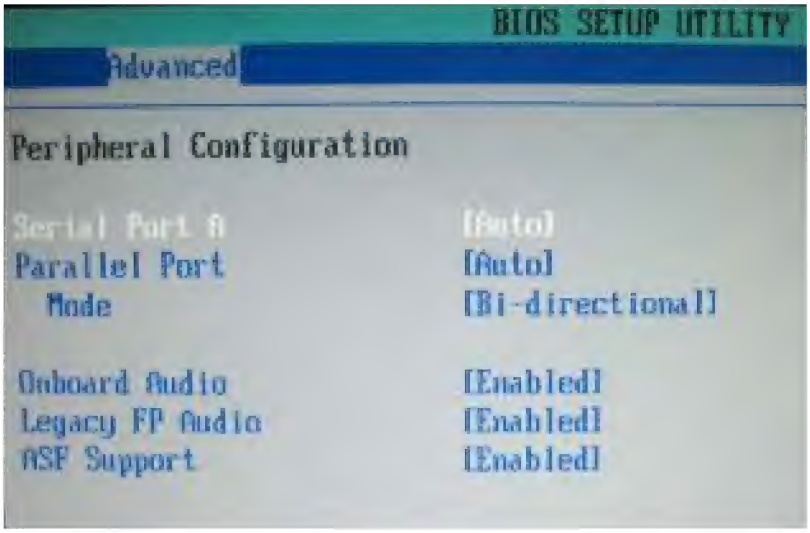


Fig 3.4.5

Fig 3.4.6

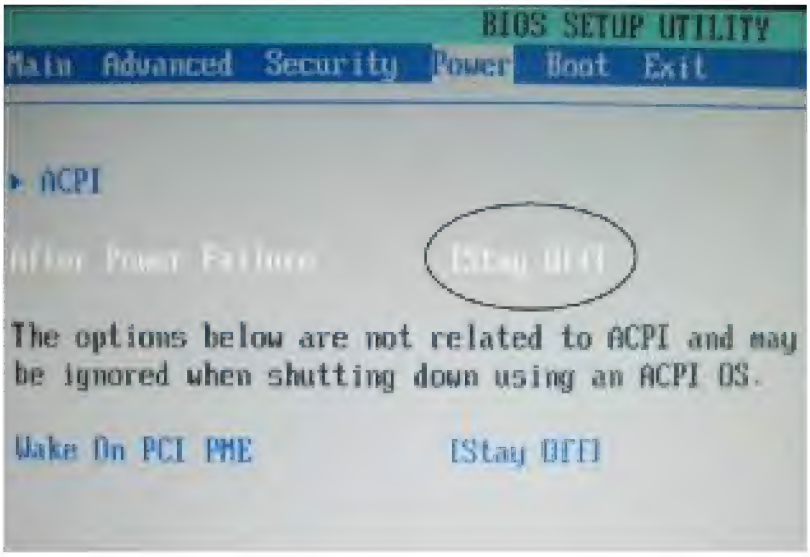


Fig 3.4.7

Usually the **BIOS** of the Linux server motherboard have been configured in the factory.

If the recovery failed, the setting of the Linux server **BIOS** shall be checked:

- Connect a keyboard and a monitor to the Linux Server motherboard.

Fig 3.4.9

- When starting the Linux server press Delete on the keyboard for entering the **BIOS**.
- Check all the setting, which must be the same as the above illustration.

Steps:

- Insert the Linux recovery CD to the CD-ROM of the Linux server.
  - Press the Linux Server power button to turn Linux Server off.
  - Press the Linux Server power button again to turn Linux Server on.
  - Wait about 10 minutes, the Linux system will be recovered automatically, at this time you can see the installation information on the Linux LCD Panel.
  - Finally you will be requested to enter a serial number, just press OK button on the Linux LCD panel, and then wait till finish.
  - Press the Linux Server power button to turn Linux Server off,
  - Press the Linux Server power button again to turn Linux Server on, and then eject the Linux Recovery CD immediately (otherwise the Linux system will be recovered again).

3.5 Integration with Pakon scanner

A series of Pakon film scanner such as F-135, F-235, F-335 etc. can be integrated to **Istudio** for sending scanned images to **Istudio** automatically after scanning.

Purpose: Integrate the **PSI-X35** to **Istudio**.

Precondition:

Pakon scanner has been setup.

The network between Pakon scanner PC and the **Istudio** PC has been setup.

Refer to the related manual for setup Pakon scanner to PC.

Steps:

For example, **Istudio** has been installed on the hard disk **C:\LAFOT\Studio** of the PC which IP address is **10.1.1.2**.

1. Share the **Archive** folder of **Istudio** on the network.

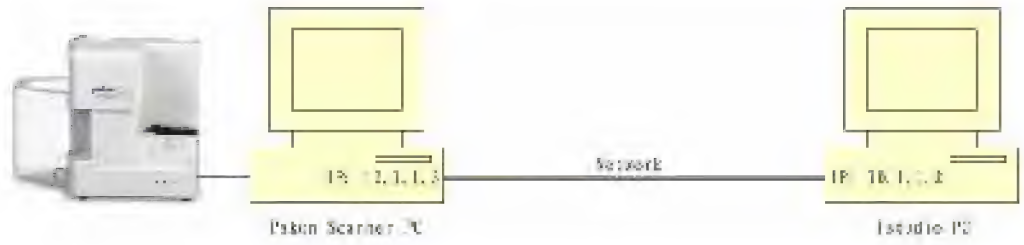


Fig 3.5.1

- In **Istudio** PC **C:\LAFOT\Studio** highlight the **ARCHIVE** folder and then right click mouse select **properties**.

Fig 3.5.2

➢ Configure Network sharing and security as the illustration below:

Fig 3.5.3

2. Customize the **Package 1** of **PSI-X35**.

➢ Run **PSI-X35** on the Pakon scanner PC.

➢ Select **Setup** and then point to **Package** and then select **Package 1 Ctrl+1**.

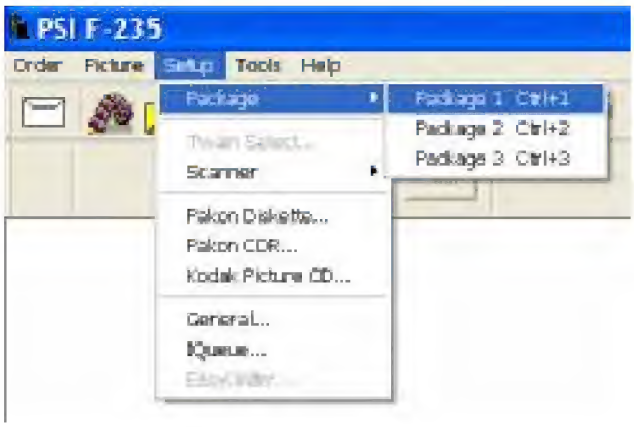


Fig 3.5.4

➢ Select **Save As** only and then click **Setup**.

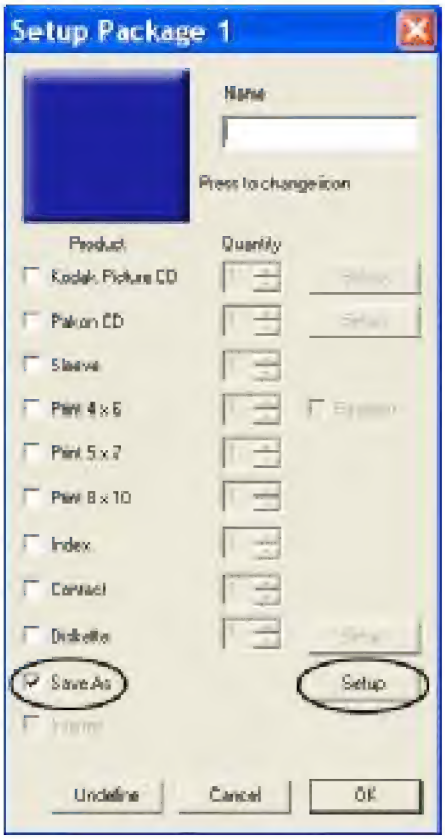


Fig 3.5.5

➢ In **Root Directory** type **\\10.1.1.2\archive** and select **Create subdirectory for each Roll ID**.

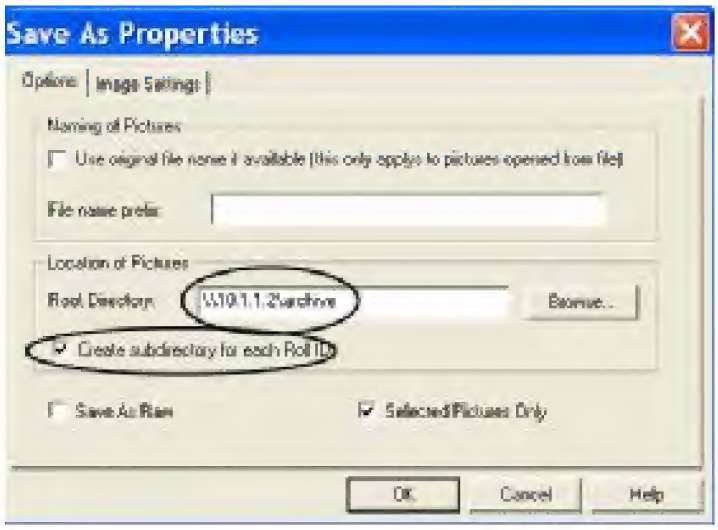


Fig 3.5.6

- Under **Image Settings** tab select **JPEG** for **File**, and **100** for **Quality**, and then click **OK**.

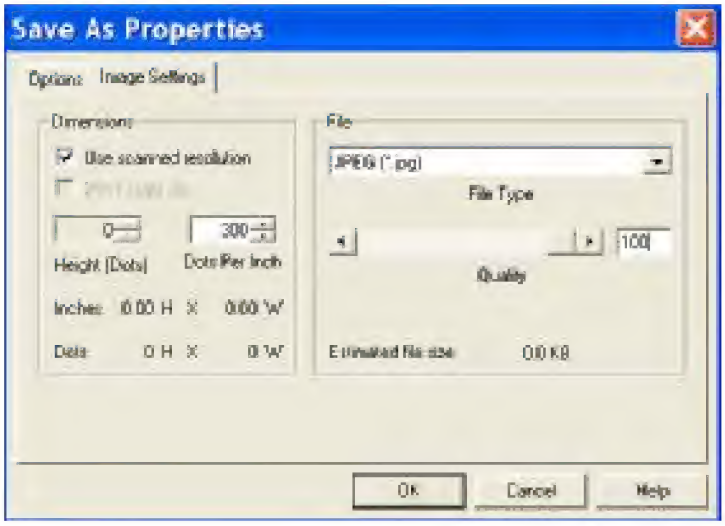


Fig 3.5.7

3. Configured **Auto Run** of **PSI-X35**.

   - Click **Setup** and then point to **Scanner** and then select **Scan Mode…**.

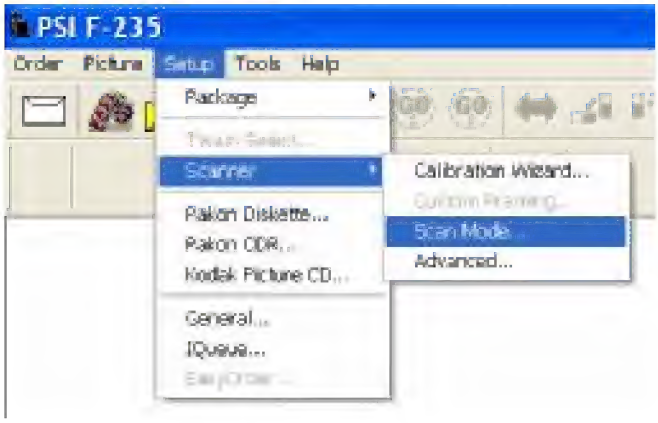


Fig 3.5.8

- In **Auto Run** select **Script 1** and then click **OK**.

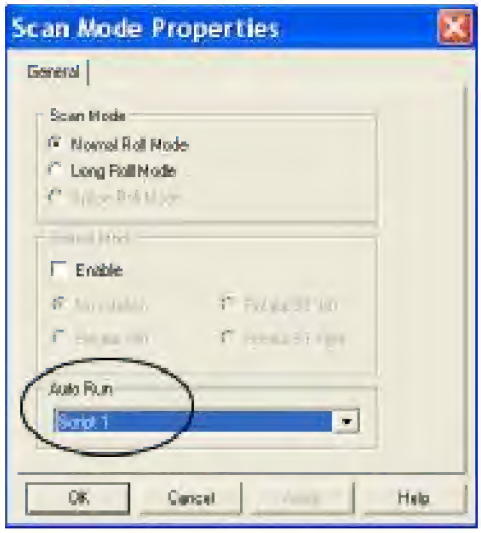


Fig 3.5.9

Working flow from film to photos:

1. Insert a film to the Pakon scanner **PSI-X35,** and scan the film..
2. After finishing the scan in **Istudio** click **ARCHIVE** icon to open **ARCHIVE** folder.

Fig 3.5.10

3. Select the Roll ID of the film which you have scanned, and then click **Open**.

Usually you need to wait a little bit until the scan image exporting finishes.

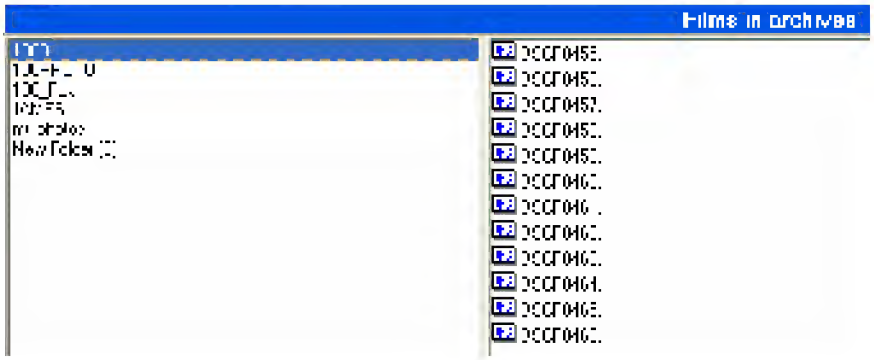


Fig 3.5.11

4. Print.

3.6 Client PC setup

DL-2300 is a network printer. User can connect up to 253 clients PC to the Linux server via network.

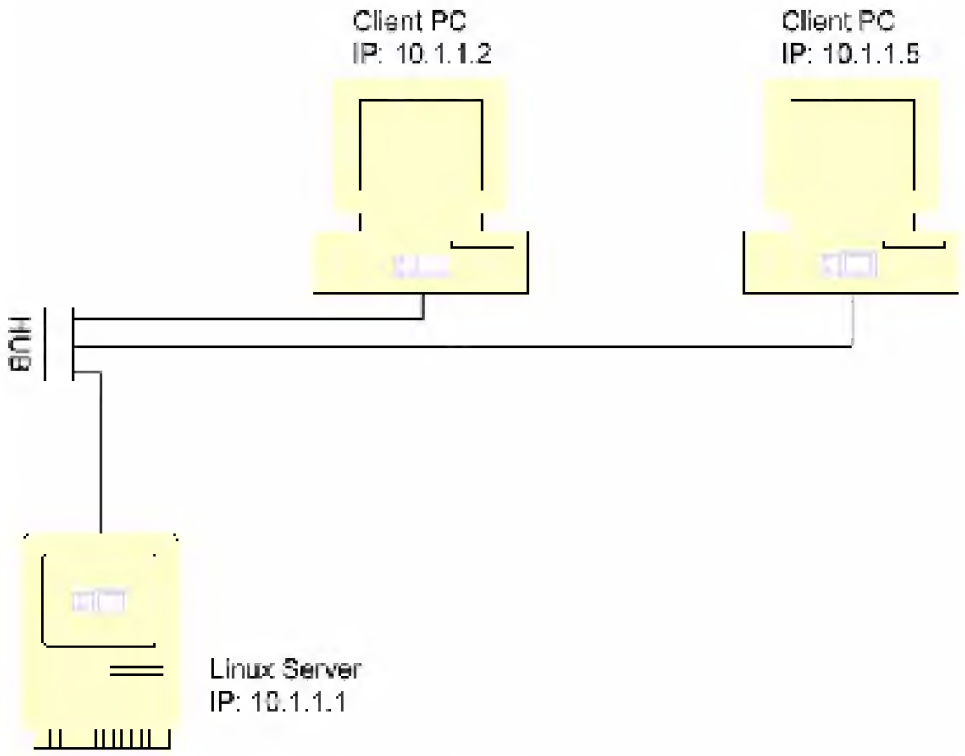


Fig 3.6.1

Istudio is the only software which can send orders to the Linux server for printing.

To setup **Istudio** on each PC, a dongle (eg. license) is needed.

The computers talk to each other by TCP/IP protocol on the network.

The IP address of the Linux server is 10.1.1.1, and it is fixed and can not be changed; the IP address of client PC can be configured by user.

Purpose: To configure a new PC connected to DL-2300 machine for printing.

Precondition:

- The network card has been setup on the new PC;
- The new PC has been connected to the HUB via network cable.

Things required:

- A dongle for Istudio

  The dongle for **Istudio** and the dongle for Linux server are different and can not be exchanged.

- Dongle driver
- Istudio setup program

  - The dongle driver program **HASP-64** and the **Istudio** setup program **LS2_4_53** can be found in the **DL-2300** folder of the DL-2300 machine Windows PC hard disk.
  - The name of the dongle driver setup program could not be **HASP-64, and** the name of **Istudio** setup program could be not **LS2_4_53** as the technical upgrade. Ask the service people for the latest information.

- A spare USB2.0 port of the new PC motherboard.

Steps:

1. Configure IP address for a new PC.
   - On the new PC, click **Start** and point to **settings,** then open **Control panel**.
   - Open **Network connections**。
   - Highlight **Local Area Connection**, and right click mouse, then select **Properties**.

➢ Highlight **Internet Protocol (TCP/IP)** and click **Properties**.

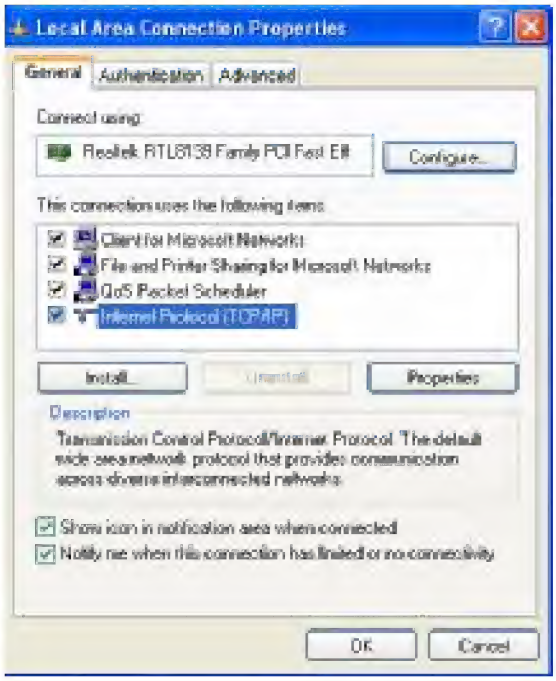


Fig 3.6.2

➢ Select **Use the following IP address:**, set the IP address and the Subnet mask as the illustration below:

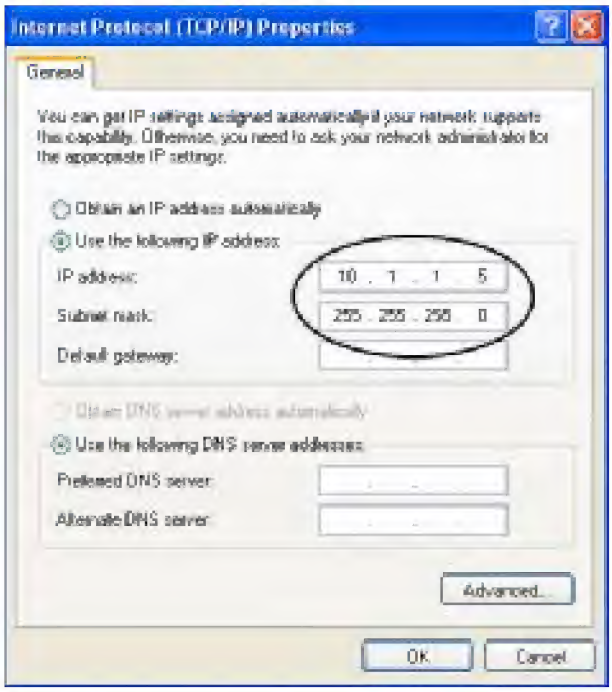


Fig 3.6.3

➢ Click **OK**.

2. Insert dongle to USB2.0 port of the motherboard.

3. Run **HASP-64** to install driver for the dongle.

Fig 3.6.4

4. Run **LS2_4_53** to Install **Istudio** on the new PC.

Fig 3.6.5

5. Set language file name for the new PC.

➢ On the new PC click **Start** and then **Run**.

➢ Key in **\\10.1.1.1\win-software** and then enter.

- Run **Config**.
- Set **Language file name** to **english.lng**.

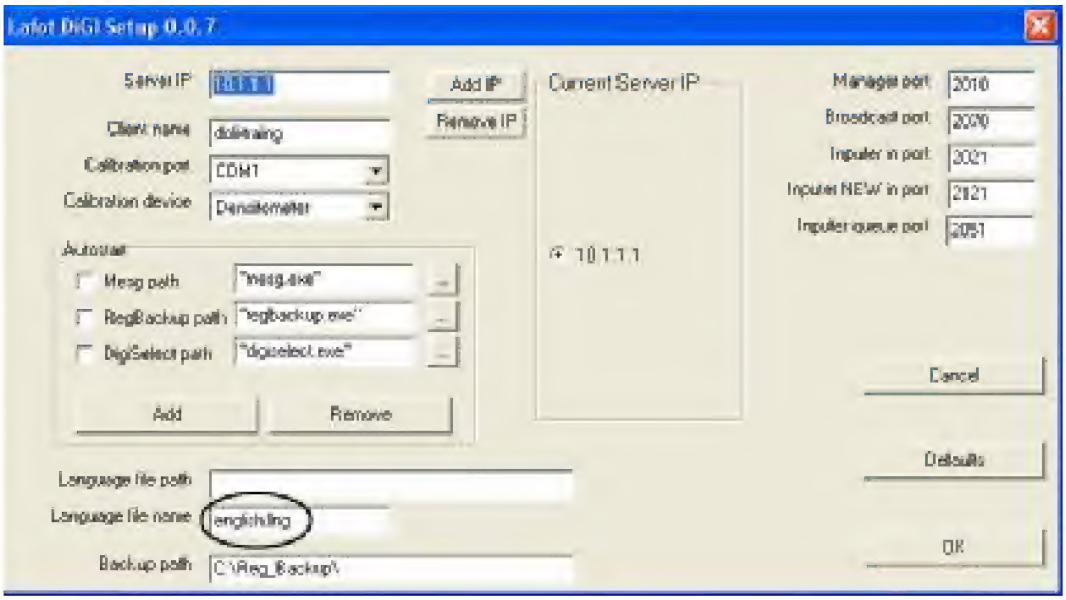


Fig 3.6.6

- Click **OK**.

3.7 Unilateral valve of replenishing pump cleaning and replacement

Purpose: To clean or replace a unilateral valve of a replenishing pump.

Tools required: Screw driver, container, protection glove.

- To prevent chemical running over when cleaning or replacing a unilateral valve, use a container to contain the chemical during operation.
- Ware protection gloves during the operation to avoid chemical contact to your hands.

Steps:

1. Remove machine back cover.
2. Remove the 3 fixation screws of the replenishing pump, and take out the replenishing pump from the machine.

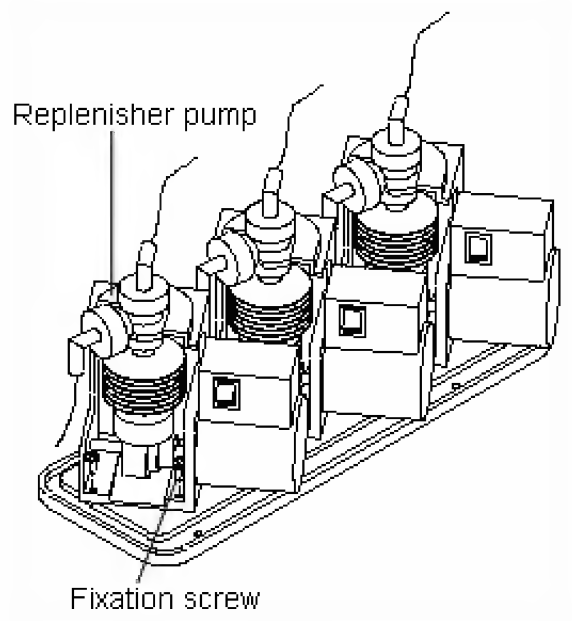


Fig 3.9.2

3. Tweak out the cover of the replenishing pump, remove the inlet element and outlet element (be care, chemical will run out).

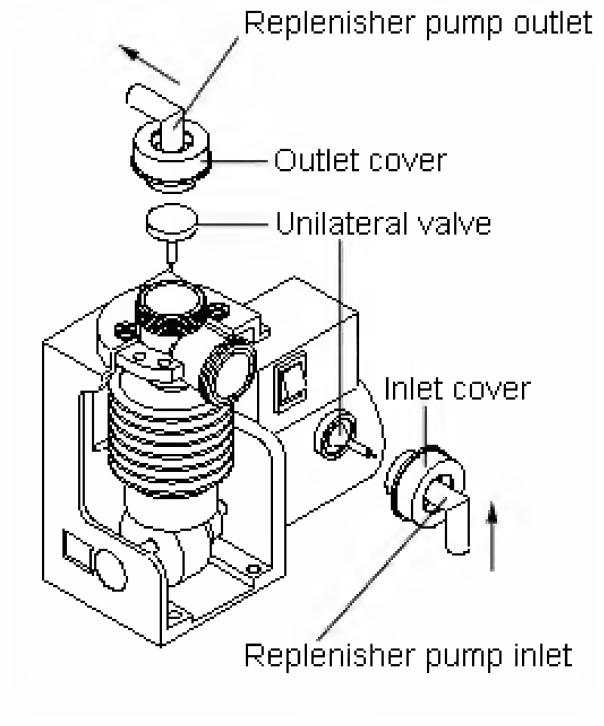


Fig 3.9.3

4. Take out the unilateral valves and wash or replace them.
5. Restore the inlet and outlet cover to the replenishing pump, make sure it is tight.

Make sure the unilateral valve has been installed to the correct direction.

6. Screw down 3 the fixation screws to restore the replenishing pump to the machine.
7. Restore the back cover.

3.8 Filter cleaning and replacement

Purpose: To clean or replace filters of working tank and to keep the chemical clean.

- Dirty chemical can produce dirty photos.
- Replace filter if necessary.

Tools required: Container.

Put a filter unit onto a container immediately after removing the filter from working tank to prevent chemical splattering.

Steps:

1. Take off the backside cover of a working tank, and take out the filter unit carefully.

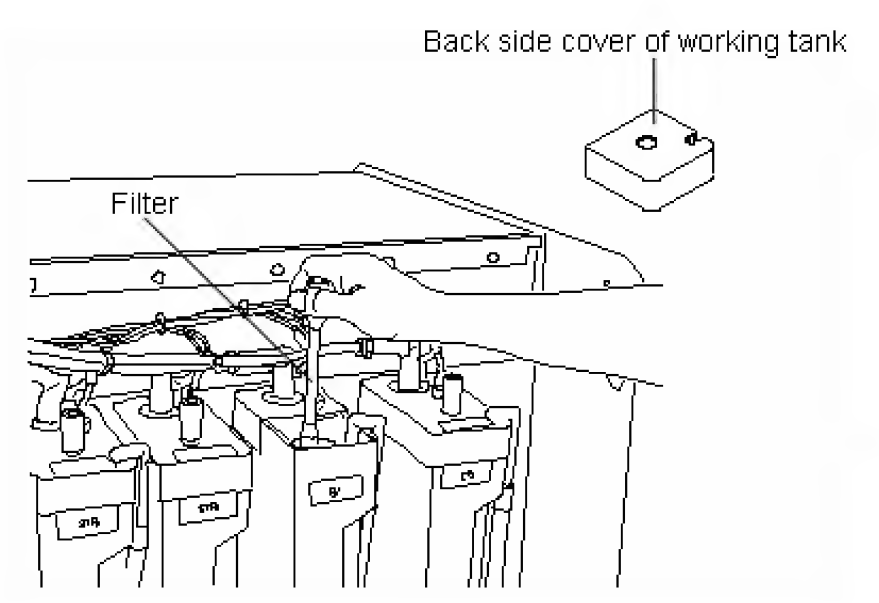


Fig 3.13.1

2. Clean the filter units bwith water or replace the filters.

   To Replace a filter:

   - Remove cover, and remove the filter from the pole.
   - Clean the filter pole with water.
   - Install a new filter to the pole.
   - Restore the cover.

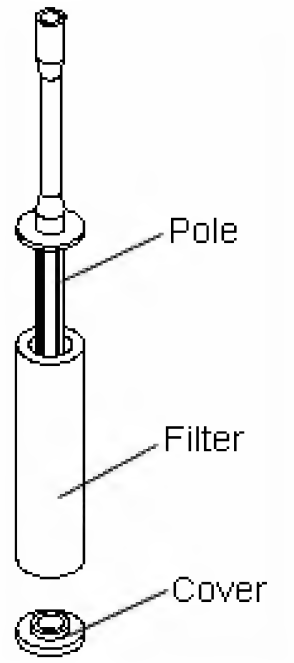


Fig 3.13.2

3. Restore the filter unit to the working tank.
4. Restore the left side cover.

3.9 Rack sleeve replacement

Purpose: To replace the sleeve of the rack.

The sleeve shall be replaced if it is damaged or ***Tran mutative*** or corrupted, or soiled heavily. Otherwise it could cause paper overlapping or paper jam.

Tools required: Pliers, protection cushion.

Steps:

1. Remove racks from working tank.
2. Remove C type rings, gears and bearings on both sides of the rollers which are included inside the sleeve.

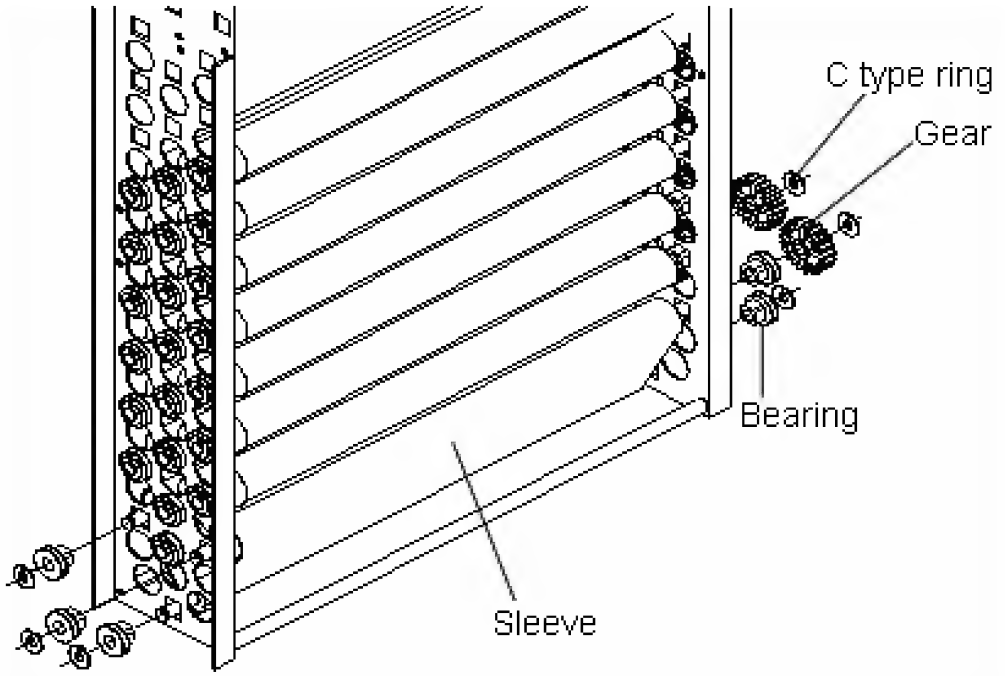


Fig 3.14.1

3. Remove the 3 rollers which are included inside the sleeve from the rack, and then remove the sleeve.
4. Replace the sleeve.
5. Reassemble the 3 rollers into the rack.
6. Restore bearings.
7. Restore gears.
8. Restore C type rings.
9. Turn the double tooth gear anticlockwise to make sure the sleeve runs well.

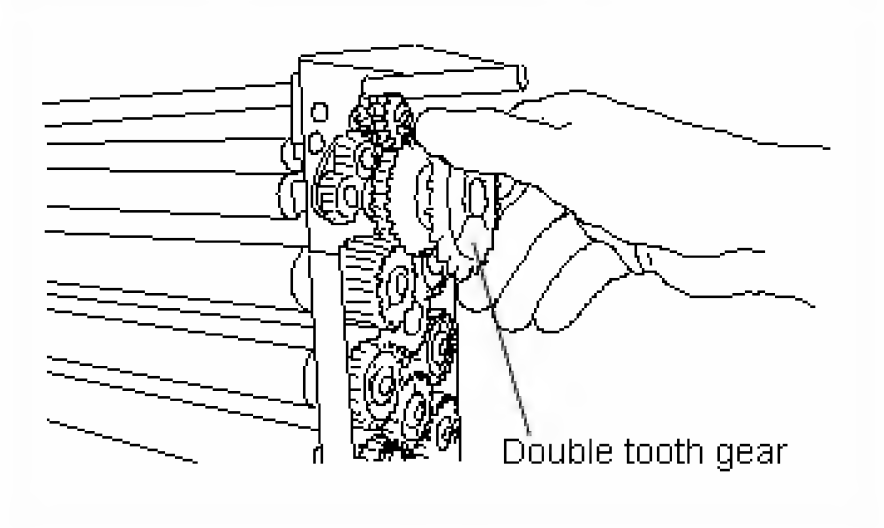


Fig 3.14.3

10. Restore rack to machine.

3.10 Rack cleaning and examination

Purpose: To check and clean racks to prevent paper scratching, jamming, and paper edge damage.

Tools required: Protection cushion, fluff brush, cotton cloth.

Steps:

1. Take out rack from working tank.
2. Clean rack with a fluffy brush and water to remove residuals from roller and gears.

   When cleaning, rotate the double tooth gear to turn the rollers so that rack could be cleaned thoroughly.
3. Clean sleeve wth a fluffy brush and water.
4. Clean the cross overs with a cotton cloth and water.

   Don't use brush to clean the cross over, the surface of the cross over is very smooth, it could be damaged by brush or other hard objects that will cause paper scratch.
5. Check the following parts to be OK.
   - Springs
   - Rollers
   - Gears
   - C type rings
   - Sleeve
6. Restore the rack and the cross-over to machine.

3.11 Check and clean working tanks and pipes

Purpose:

- To check working tanks and pipes in order to prevent potential chemical leaking.
- To clean working tank in order to keep chemical clean.

For convenience, this check can be performed while replacing chemical.

Tools required: Protection cushion.

Steps:

1. Connect a water pipe to the tap, place the other end of the pipe to a container and turn the tap counter-clockwise to drain off chemical.

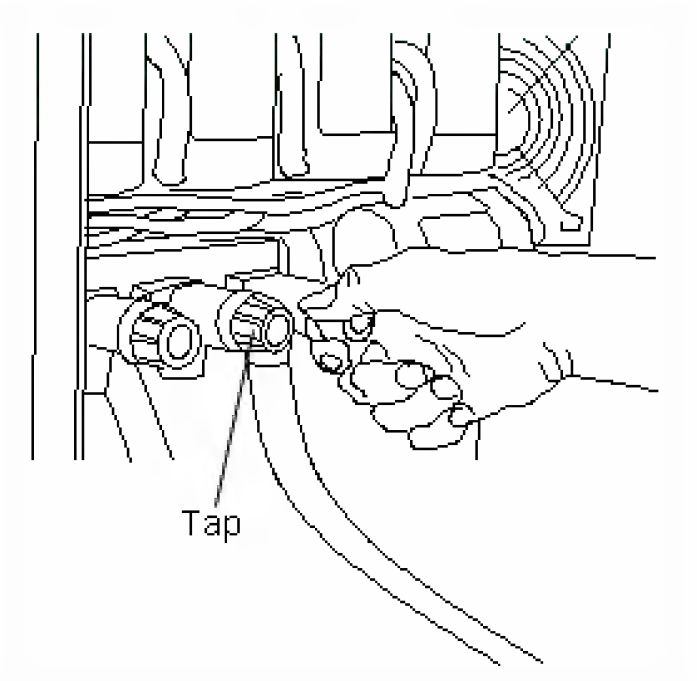


Fig 3.16.1

2. Remove racks from working tank.
3. Check all connectors of the pipes, which must be sealed reliably.
4. Clean all working tanks using a fluff brush and water to remove residuals and stains.
5. Add water to working tanks until level is OK and power on the machine to start circulations for about 15 minutes, drain water. Repeat 1-3 times.
6. Restore everything to the machine.

3.12 Cutter section and back printer section disassembly

Precondition:

- Paper has been rewind to paper magazine.
- Machine has been shut down.

Steps:

1. Open printer door.
2. Remove exposure platform front cover, and remove the fixation screw of the cutter section and the back printer section.

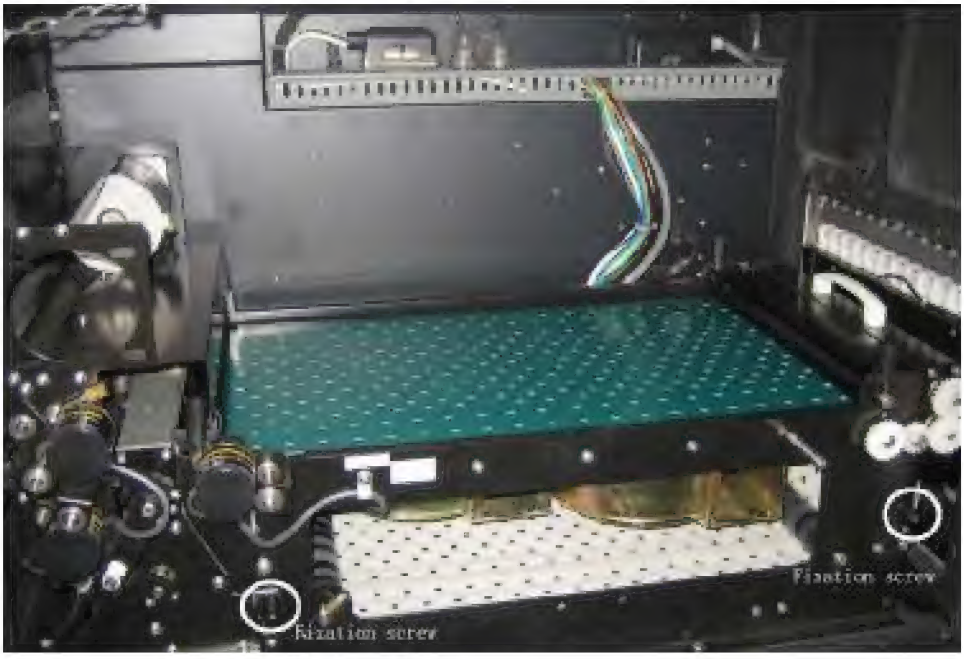


Fig 3.12.1

3. Pull out the cutter section by hand.
4. Press down the 2 lockers on the 2 sliders of the cutter section to take out the cutter from the machine.

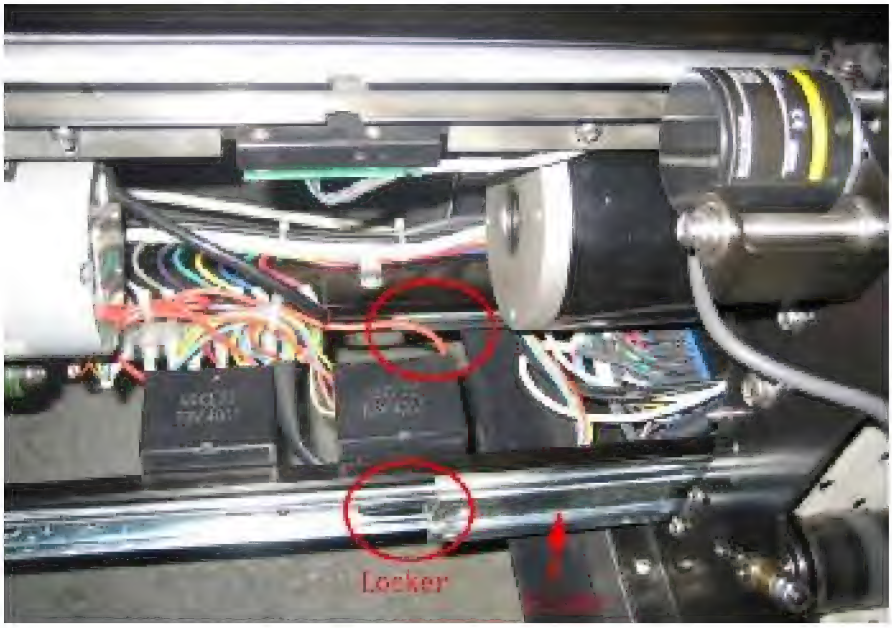


Fig 3.12.2

5. Lift up the back printer section and take it out from the machine.

3.13 Separator disassembly

Precondition: The machine has been shut down.

Tools required: Cross screw driver

Steps:

1. Remove the 2 fixation screws from the cover by hand.

Fig 3.13.1

2. Remove the fixation screw on the separator, and pull it out from the machine.

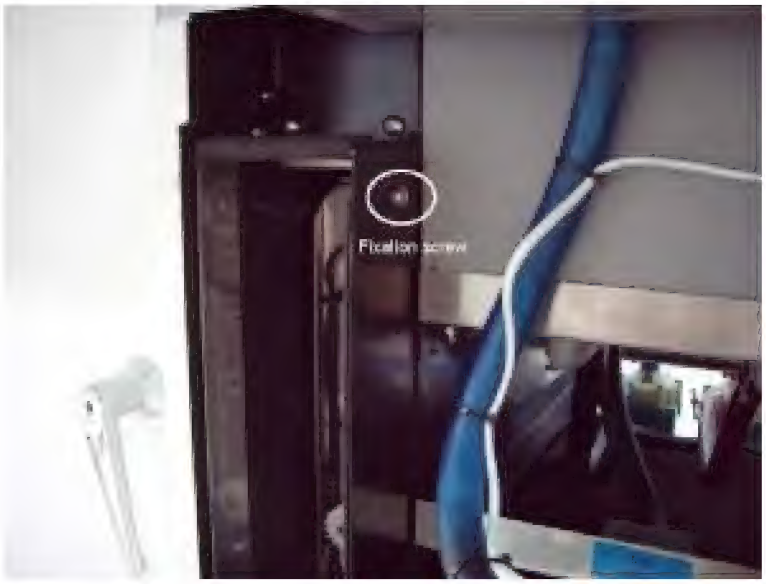


Fig 3.13.2

3.14 Lens focus adjustment

Purpose: To adjust lens focus in order to produce sharp photos.

Tools required: Ellen key (could be found in the accessories of the machine), tapes.

Steps:

1. Open the printer door, loose the locking ring of the Lens, of which the focus needs to be adjusted by hand.

Fig 3.20.1

2. For each Lens there are 3 screws for locking the focus, unscrew the 3 screws by Ellen key.
3. Paste tape on the Lens below and above the locking ring, close the printer door and send test print in **Istudio**.
4. Open the printer door, rotate the Lens at small increment and make test print again.

   Make ring around test prints as the table below:

Test prints #	Angle of the Lens rotated
0	0°
1	30° anticlockwise
2	30° clockwise
3	60° anticlockwise
4	60° clockwise
5	90° anticlockwise
6	90° clockwise

Prologue

Take time to read the manual and study the machine until you understand everything well before you perform the service.

Ask somebody for help if you are not confident with the things you are going to do to avoid serious problems.

3.15 Lens selection logic

DL-2300 uses 2 fixed focus lenses which are lens 000 and lens 001 for all photo size printing.

When printing, user just selects the size of the photo in **Istudio** and sends the order,, the computer will select the appropriate lens automatically.

The computer selects the lens bases on the following logic:

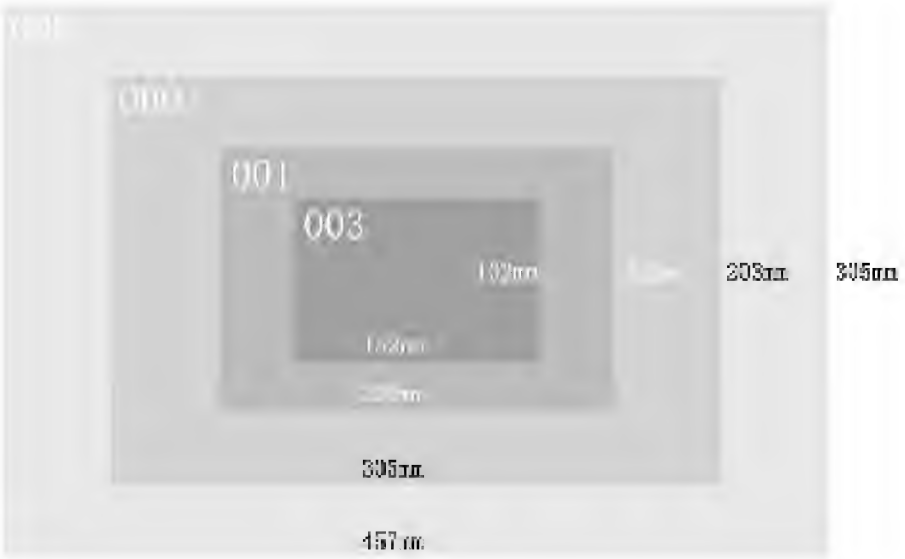


Fig 3.21.1

For example:

Photo size	Exposed by lens
102x152mm	Lens 003
152x102mm	Lens 001
152x203mm	Lens 001
203x152mm	Lens 000
203x305mm	Lens 000
305x203mm	Lens 002
305x457mm	Lens 002

Photos printed with lens 000 and lens 002 could be exposed in 9 times or 4 times exposure mode.
Photos printed with lens 001 are exposed in 4 times exposure mode.
To apply 9 times exposure mode to the format, **HQ** must be selected when creating the

format.

2.6 Twister 9 calibration

If the LCD model of your machine is Sony 036, then all the formats will be printed in 4 times exposure mode. Please do not select **HQ** when creating formats.

Chapter 2 Maintenance > **Prologue** for identifying the LCD model of your machine

3.16 LED replacement

Precondition: The machine has been shut down, and the cover of the exposure head has been removed.

Tools required: Flat screw driver.

Steps:

1. Unplug J4 and J6 plug of the Mater PCB
2. Remove the 2 fixation screws of the LED.

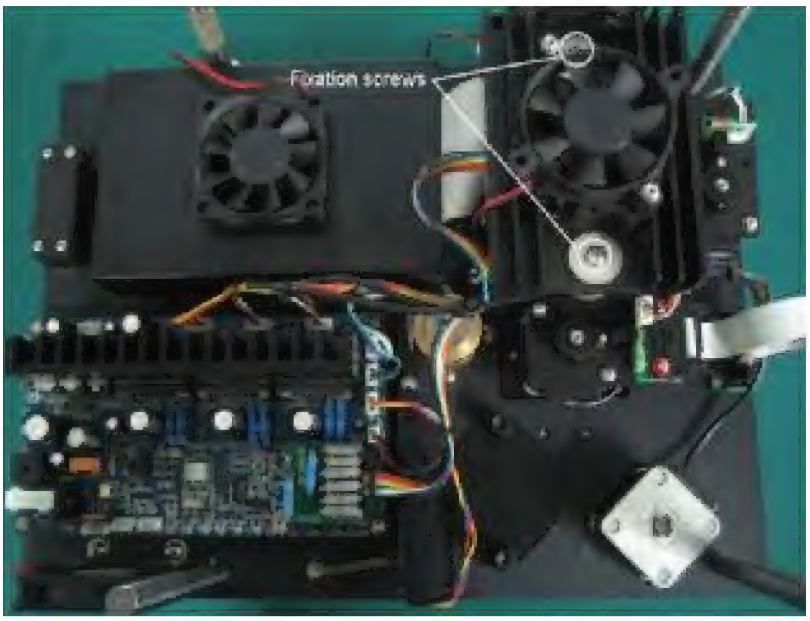


Fig 3.15.1

3. Replace the LED assembly.
4. Screw down the 2 fixation screws of the LED and plug in the J4 and J6 plugs to the Master PCB.
5. Redo the Morning test for all paper magazines.

2.1 Morning test

6. Redo the Uniformity Mask calibration for all lenses

2.7 Uniformity calibration

3.17 Back printer ribbon cassette replacement

Purpose: To replace the exhausted back printer ribbon cassette.

Tools required: Cross screw driver.

Precondition: Paper has been unloaded, and machine has been shut down.

Steps:

1. Open the printer door and remove the Back printer section from the machine.

3.12 Cutter section and back printer section disassembly

2. Unscrew the 2 fixation screws of the cover and remove the cover.

Fig 3.16.1

3. Unscrew the 3 fixation screws of the back printer.

Fig 3.16.2

4. Unscrew the ribbon cassette fixation screw by hand.

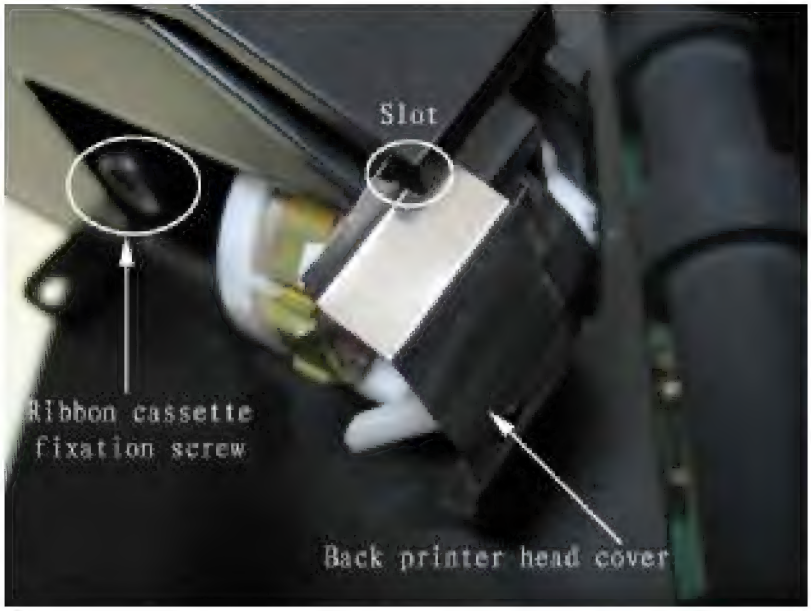


Fig 3.16.3

5. Remove the back printer head cover from the 2 slippage slots.
6. Replace the ribbon cassette, tighten the ribbon cassette fixation screw and then restore the back printer cover.
7. Insert 3-5 photographic paper between the roller and the printer head.

Fig 3.16.4

8. Position the back printer on the 3 back printer fixation screws hole, and tighten the 3 fixation screws while pushing the printer head towards the paper. The distance between the printer head and roller should be about 0.8mm.

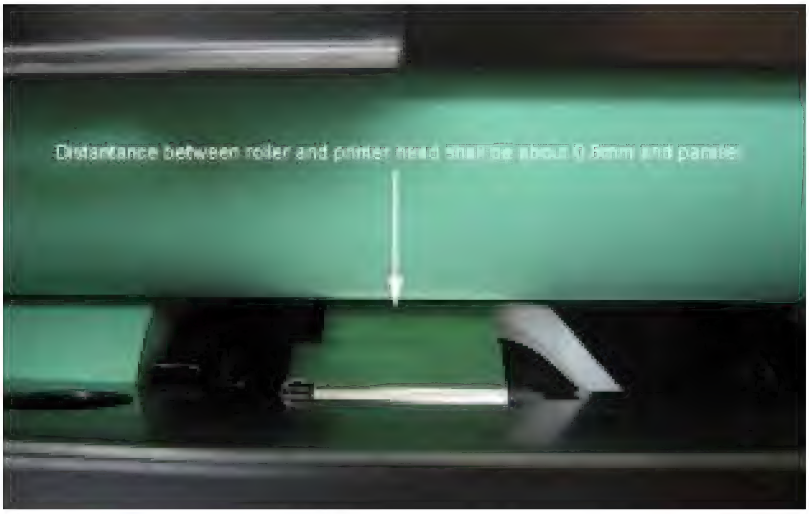


Fig 3.16.5

9. Restore the Back printer section to the machine.

It is a good idea that you clean the printer head and the roller during the ribbon cassette replacement.

The ribbon cassette can be supplied by dealer or DOLI

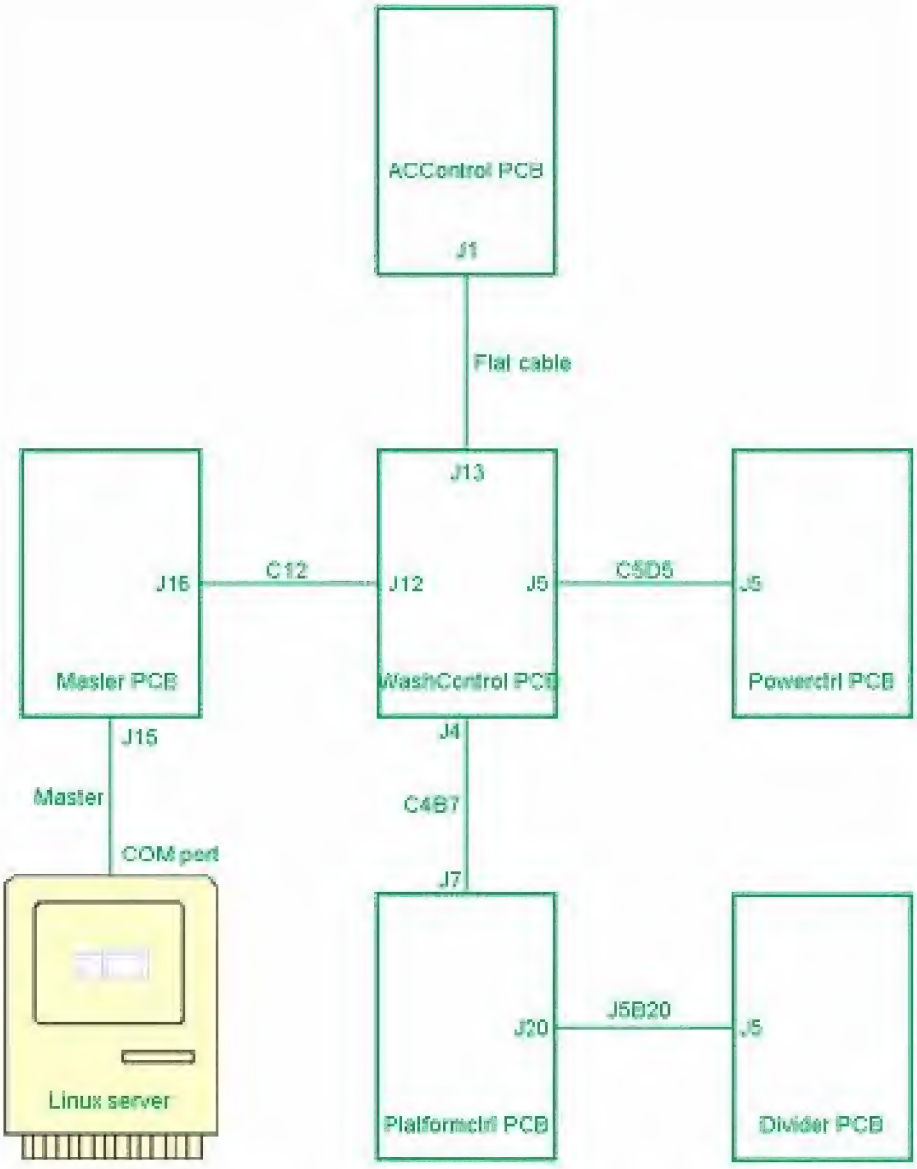
4

Chapter 4 Electrical parts and wiring diagram

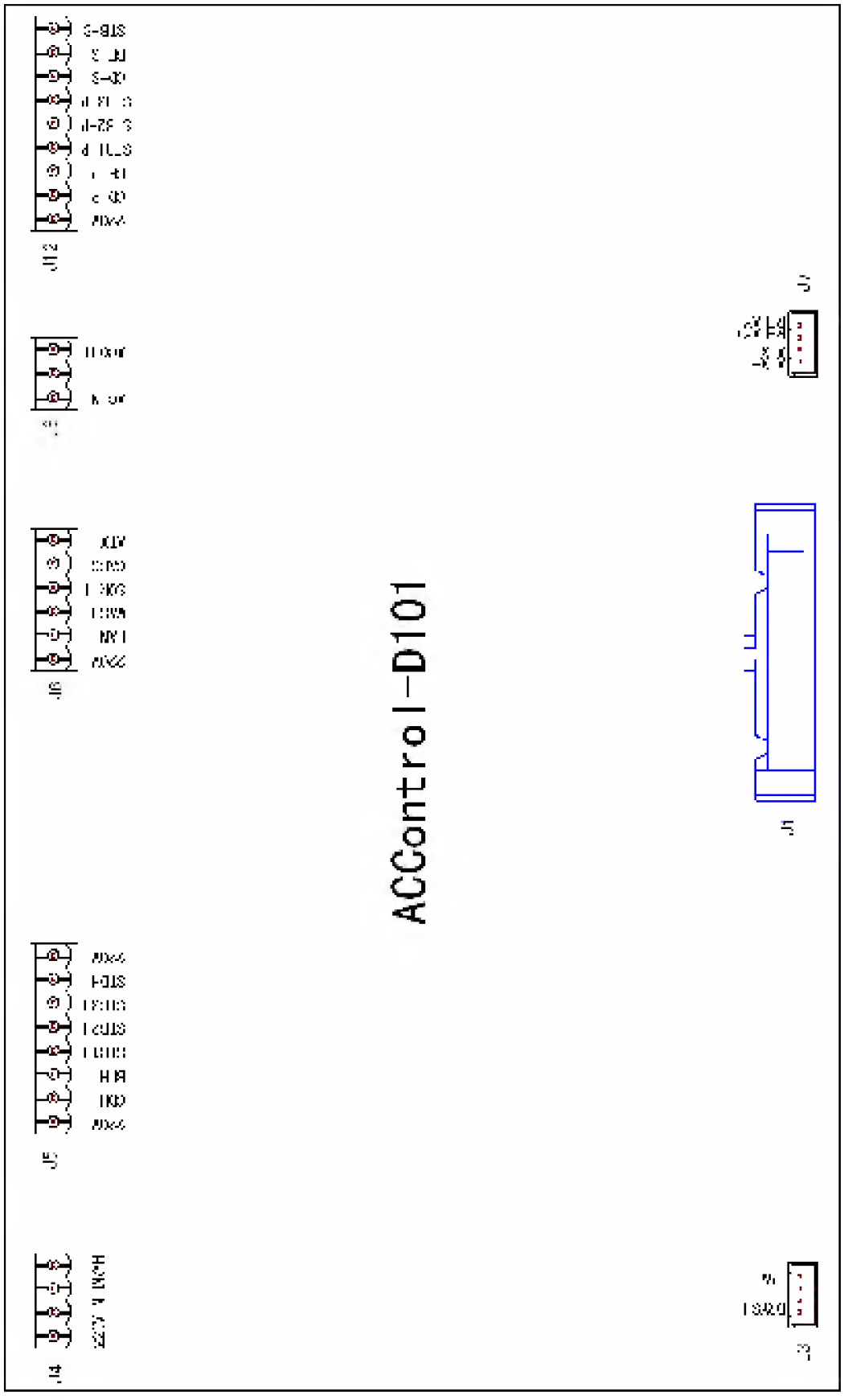
This chapter describes the sensors and PCBs used in this machine and the wiring diagram.

Prologue

Except for the ACControl PCB, all the circuit boards talk to each other vis serial port.



4.1 ACControl PCB



Functions

- Supply power to components that use AC 220V such as main processing motor, fans, heaters, circulation pumps, replenishing pumps, AC Contactor.

Adjustment for replacement

None

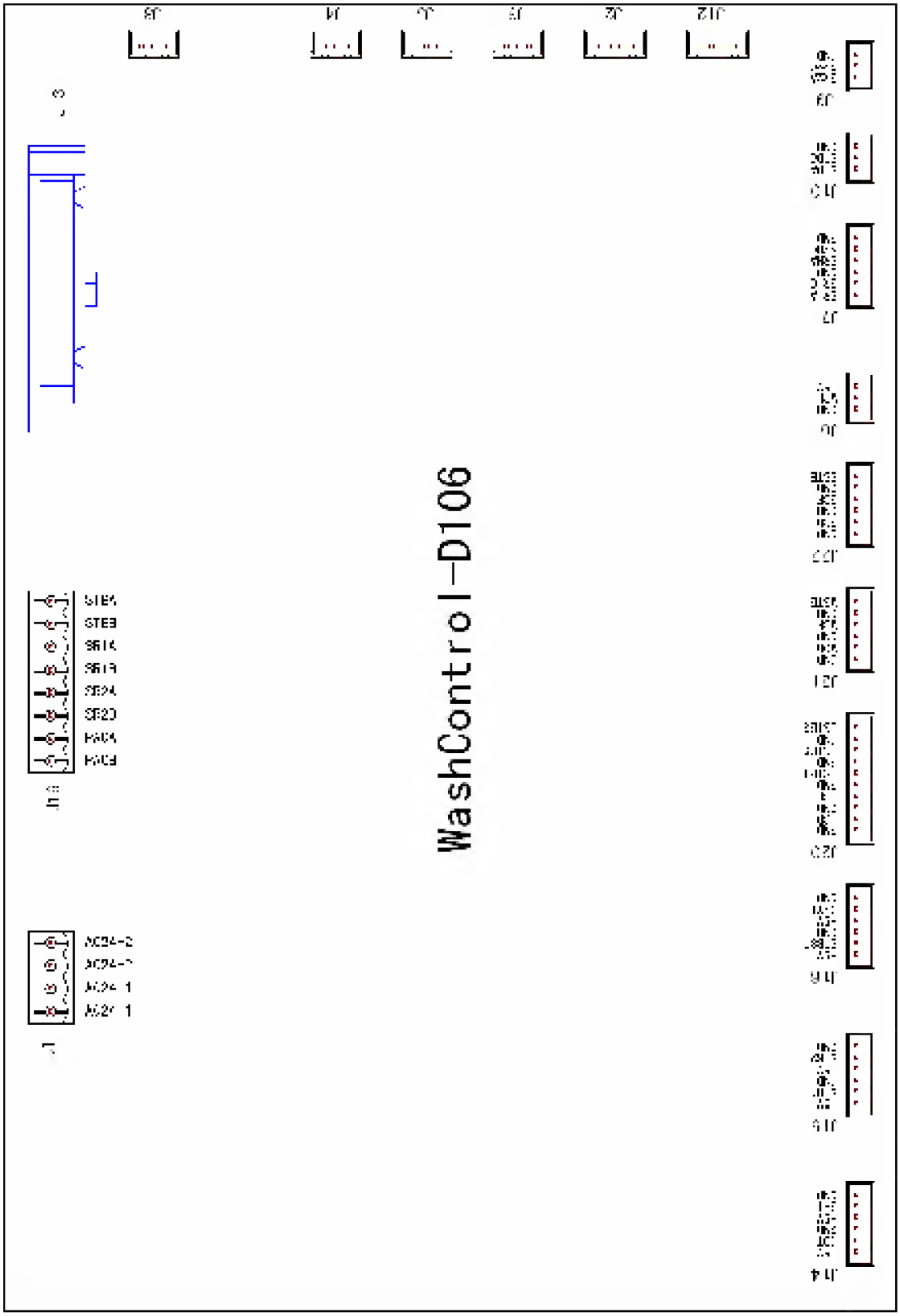
Disposition and description

Connector code	SN	Wire definition	function	Wire #	Wire color
J1	1	STBSUP	STB replenishing pump control signal		Flat cable
	2	BFSUP	BF replenishing pump control signal		
	3	CDSUP	CD replenishing pump control signal		
	4	STB3PUMP	STB3 circulation pump control signal		
	5	STB2PUMP	STB2 circulation pump control signal		
	6	STB1PIMP	STB1 circulation pump control signal		
	7	BFPUMP	BF circulation pump control signal		
	8	CDPUMP	CD circulation pump control signal		
	9	CABC	CD spray pump control signal		
	10	SORT-AC1	Sorter 1 motor control signal		
	11	WASHS	Paper processor motor control signal		
	12	CDFANS	CD cooling fan control signal		
	13	STDHS	standby		
	14	STB3HS	STB2 heater control signal		
	15	STB2HS	STB2 heater control signal		
	16	STB1HS	STB1 heater control signal		
	17	BFHS	BF heater control signal		
	18	CDHS	CD heater control signal		
	19	DRYHS	DRY heater control signal		
	20	5V			

Connector code	SN	Wire definition	function	Wire #	Wire color
J2	1	220V	AC220V live wire	L5	red
	2	CD-P	CD circulation pump	A202	Brown blue
	3	BF-P	BF circulation pump	A203	Red black
	4	STB1-P	STB1 circulation pump	A204	Yellow
	5	STB2-P	STB2 circulation pump	A205	Green
	6	STB3-P	STB2 circulation pump	A206	White
	7	CD-S	CD Replenishing pump	A207	red、blue
	8	BF-S	BF Replenishing pump	A208	yellow
	9	STB-S	STB Replenishing pump	A209	green
J3	1		Standby		
	2				
	3				
	4				
J4	1	220VIN	220V Live wire	L5	red
	2			L5	red
	3	DRY	Dryer heater	DRYT	Pink
	4			DRYT	Pink
J5	1	220V	AC220V live wire	L5	red
	2	CDH	CD heater	A502	brown
	3	BFH	BF heater	A503	orange
	4	STB1H	STB1 heater	A504	yellow
	5	STB2H	STB2 heater	A505	green
	6	STB3H	STB3 heater		black
	7	STDH	Standby		
	8	220V	AC220V live wire	L5	red

Connector code	SN	Wire definition	function	Wire #	Wire color
J6	1	220V	AC220V live wire	L5	red
	2	FAN	CD cooling fan		Green
	3	WASH	Paper processor motor	A603	orange
	4	SORT1	SORT1 motor		Brown
	5	CABC	CD Spray pump	A605	Yellow
	6	ATX	standby		
J7	1	ATX+	Standby	D7A7	red
	2	ATX-	Standby		blue
	3	RELAY+	AC Contactor control signal +		yellow
	4	RELAY-	AC Contactor control signal -		black
J8	1	ACIN	AC Contactor control loop IN	L5	red、yellow
	2				
	3	ACOUT	AC Contactor control loop OUT	A803	green、blue

4.2 WashControl PCB



Functions

- Receive temperature signal of working tanks and dryer from temperature sensors.
- Receive level signal of working tanks,replenishing tanks and waste tanks from level sensors.
- Receive signal of sorter sensors.
- Control temperatures of working tanks.

Adjustment for replacement

- Set DIP switch to be the same as the previous board.
- Re-adjust trimmers for temperature calibration.

2.4 Temperature calibration

Disposition and description

Connector code	SN	Wire definition	function	Wire #	Wire color
J1	1	AC24V1	AC24V Power supply	K3	black
	2	AC24V1			
	3	AC24V2			
	4	AC24V2		K4	black
J2	1		Main Serial port	C2	shield
	2				Black
	3				blue
	4				brown
J3	1		Serial port 1		
	2				
	3				
J4	1		Serial port 2	C4B7	Black
	2				blue
	3				brown

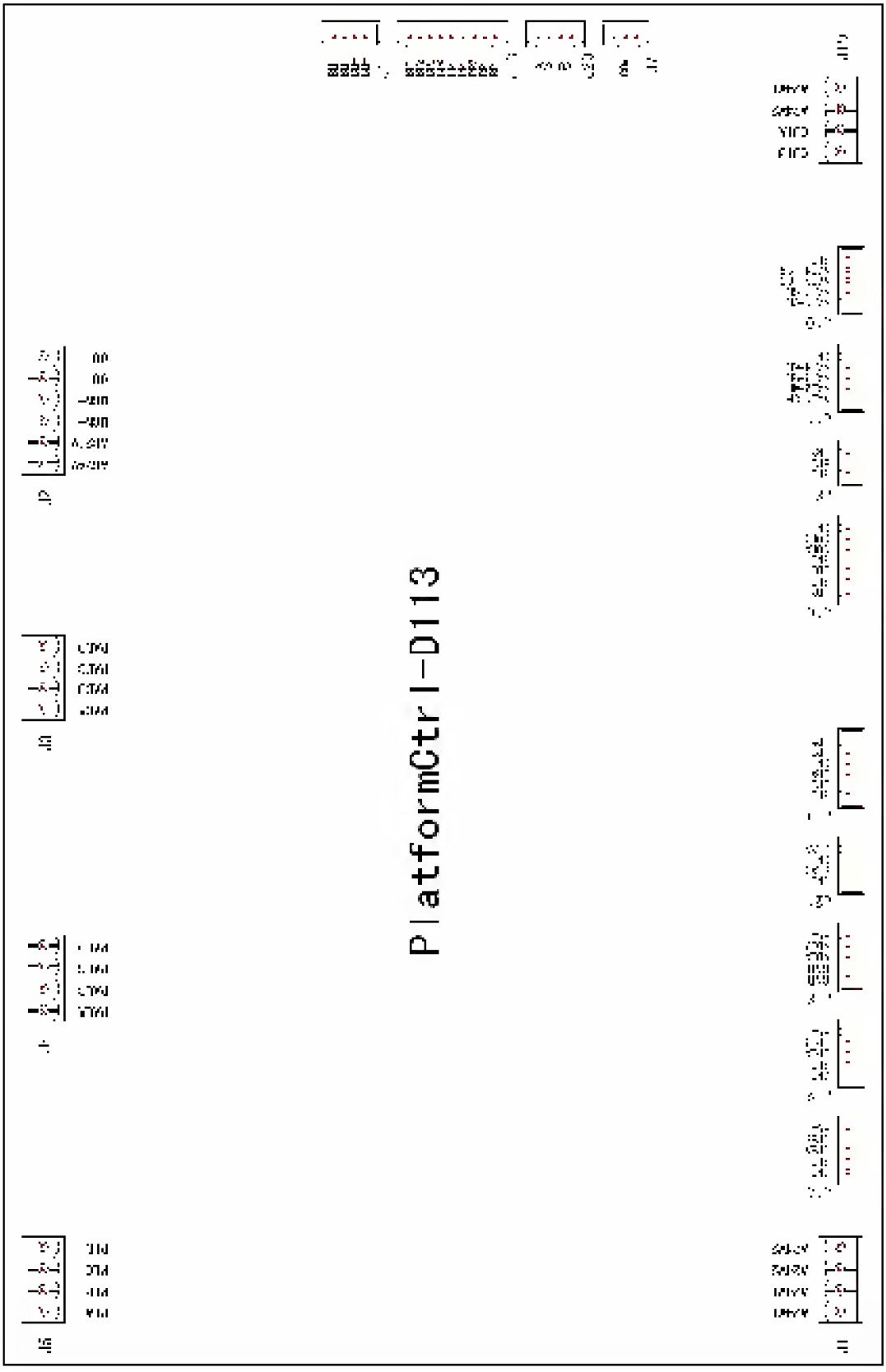
Connector code	SN	Wire definition	function	Wire #	Wire color
J5	1		Serial port 3	C5D5	black
	2				blue
	3				brown
J6	1	5V	Standby		
	2	WPL			
	3	GND			
J7	1	GND	GND of SORT1 high speed sensor	C7	Green
	2	SRHC	To Receiver of SORT1 high speed sensor		Yellow
	3	SRHA	To Emitter of SORT1 high speed sensor		Red
	4	GND	GND of SORT1 sensor		Black
	5	SR1C	To Receiver of SORT1 sensor		White
	6	SR1A	To Emitter of SORT1 sensor		blue
J9	1	GND	GND of SORT2 sensor	C9	Black
	2	SR2C	To Receiver of SORT2 sensor		blue
	3	SR2A	To Emitter of SORT2 sensor		brown
J10	1	GND	Standby		
	2	STDC			
	3	STDA			
J12	1		Main serial port	C12	shield
	2				Blue
	3				yellow
	4				red

Connector code	SN	Wire definition	function	Wire #	Wire color
J13	1	STBSUB	STB Replenishing Pump control signal		Flat cable
	2	BFSUB	BF Replenishing Pump control signal		
	3	CDSUP	CD Replenishing Pump control signal		
	4	STB3PUMP	STB3 circulation pump control signal		
	5	STB2PUMP	STB2 circulation pump control signal		
	6	STB1PUMP	STB1 circulation pump control signal		
	7	BFPUMP	BF circulation pump control signal		
	8	CDPUMP	CD circulation pump control signal		
	9	CABC	CD Spray pump control signal		
	10	SORT-AC1	SORT1 motor control signal		
	11	WASHS	paper processor motor control signal		
	12	CDFANS	CD cooling fan control signal		
	13	STDHS	standby		
	14	STB3HS	STB2 heater control signal		
	15	STB2HS	STB2 heater control signal		
	16	STB1HS	STB1 heater control signal		
	17	BFHS	BF heater control signal		
	18	CDHS	CD heater control signal		
	19	DRYHS	Dryer heating wire control signal		
	20	5V			
J14	1	5V	CD temperature sensor 5V	C14CD	red
	2	CDT	CD temperature sensor signal		green
	3	GND	CD temperature sensor shield		shield
	4	5V	BF temperature sensor 5V	C14BF	red
	5	BFT	BF temperature sensor signal		green
	6	GND	BF temperature sensor shield		Shield

Connector code	SN	Wire definition	function	Wire #	Wire color
J15	1	5V	STB1 temperature sensor 5V	C15S1	Red
	2	STB1T	STB1 temperature sensor signal		green
	3	GND	STB1 temperature sensor shield		shield
	4	5V	STB2 temperature sensor 5V	C15S2	red
	5	STB2T	STB2 temperature sensor signal		green
	6	GND	STB2 temperature sensor shield		shield
J16	1	5V	STB3 temperature sensor 5V	C15S3	Red
	2	STB3T	STB3 temperature sensor signal		Green
	3	GND	STB3 temperature sensor shield		shield
	4	5V	Dryer temperature sensor 5V	C16DRYT	red
	5	DRYT	Dryer temperature sensor signal		green
	6	GND	Dryer temperature sensor shield		shield
J19	1	PACB	Photo collector motor	C1901	Brown
	2	PACA		C1902	blue
	3	SR2B	SORT2 motor	C1903	brown
	4	SR2A		C1904	blue
	5	SR1B	Standby		
	6	SR1A			
	7	STBB	standby		
	8	STBA			

Connector code	SN	Wire definition	function	Wire #	Wire color
J20	1	LSTB3	STB3 level sensor signal	C20S3	Red
	2	GND	STB3 level sensor shield		green
	3	LSTB2	STB2 level sensor signal	C20S2	red
	4	GND	STB2 level sensor shield		green
	5	LSTB1	STB1 level sensor signal	C20S1	red
	6	GND	STB1 level sensor shield		green
	7	LBF	BF level sensor signal	C20BF	red
	8	GND	BF level sensor shield		green
	9	LCD	CD level sensor signal	C20CD	red
	10	GND	CD level sensor shield		green
J21	1	WSTB	STB Waste chemical level sensor signal	C21STB	black
	2	GND	STB Waste chemical level sensor shield		white
	3	SBF	BF Waste chemical level sensor signal	C21BF	blue
	4	GND	BF Waste chemical level sensor shield		green
	5	WCD	CD Waste chemical level sensor signal	C21CD	yellow
	6	GND	CD Waste chemical level sensor shield		red
J22	1	SSTB	STB Replenishing level sensor signal	C22STB	black
	2	GND	STB Replenishing level sensor shield		white
	3	SBF	BF Replenishing level sensor signal	C22BF	blue
	4	GND	BF Replenishing level sensor shield		green
	5	SCD	CD Replenishing level sensor signal	C22CD	yellow
	6	GND	CD Replenishing level sensor shield		red

4.3 PlatfromCtrl PCB



Functions

- Supply power to paper loading step motor, exposure platform synch belt step motor, and cutter motor.
- Receive signal from paper entry sensor, paper loading sensor, cutter sensor, and start sensor.
- Receive signal from paper magazine ID sensor.
- Receive signal from encoders.

Adjustment for replacement

- Set DIP switch to be the same as the previous board.

 DIP switch of the Platformctrl PCB definition:

#	Definition	Factory default setting
1	Set ON when calibrate the temperature of the working tanks by **DJ218TEST**	OFF
2	Set ON when test the sensor voltage	OFF
3		OFF
4	ON: Transmission type back printer sensor OFF: Reflection type back printer sensor	ON
5	ON: Enable automatically paper loading OFF: Disable automatically paper loading	ON
6	OFF: Enable upper paper magazine paper loading encoder ON: Disable upper paper magazine paper loading encoder	OFF
7	OFF: Enable lower paper magazine paper loading encoder ON: Disable lower paper magazine paper loading encoder	OFF
8	OFF: Enable exposure platform encoder ON: Disable exposure platform encoder	OFF

Usually encoder calculates the paper feeding length while step motor advances the paper. In case the encoder is broke, it can be disabled by switching the corresponding DIP switch to ON.

- Check Back printer voltage to be between DC12V-13V.

Turn Drive power ON. On Platformctrl PCB test the voltage between test point TE1 and TE2, adjust trimmer VR1 to set the value between DC 12V-13V.

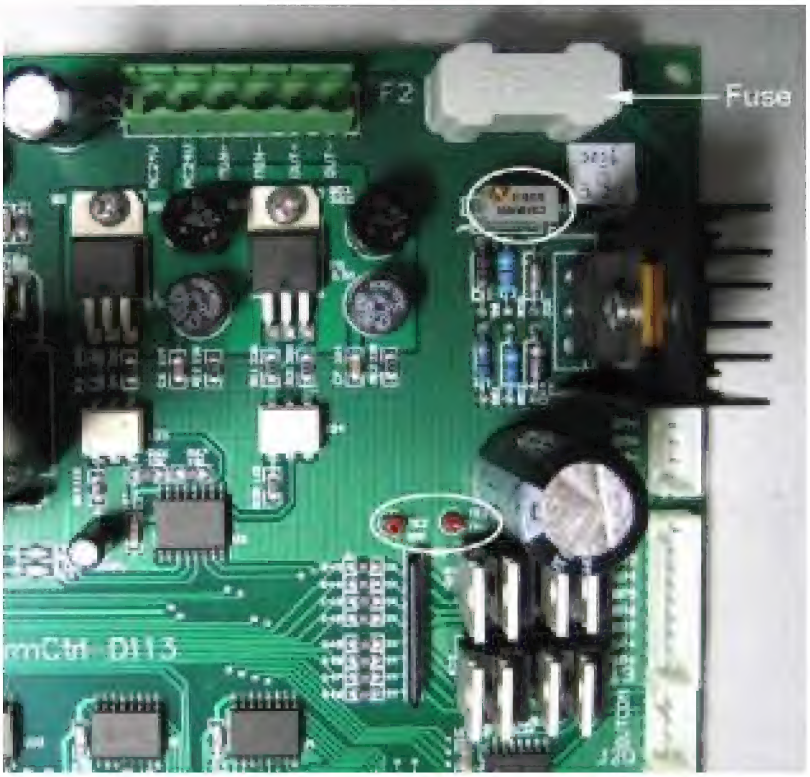


Fig 4.3.1

(Increase the value will increase the back print density.)

Disposition and description

Connector code	SN	wire definition	function	wire #	wire color
J1	1	A24V2	AC 24V power input	K2	blue
	2	A24V2		K2	blue
	3	A24V1		K1	blue
	4	A24V1		K1	blue
J2			standby		

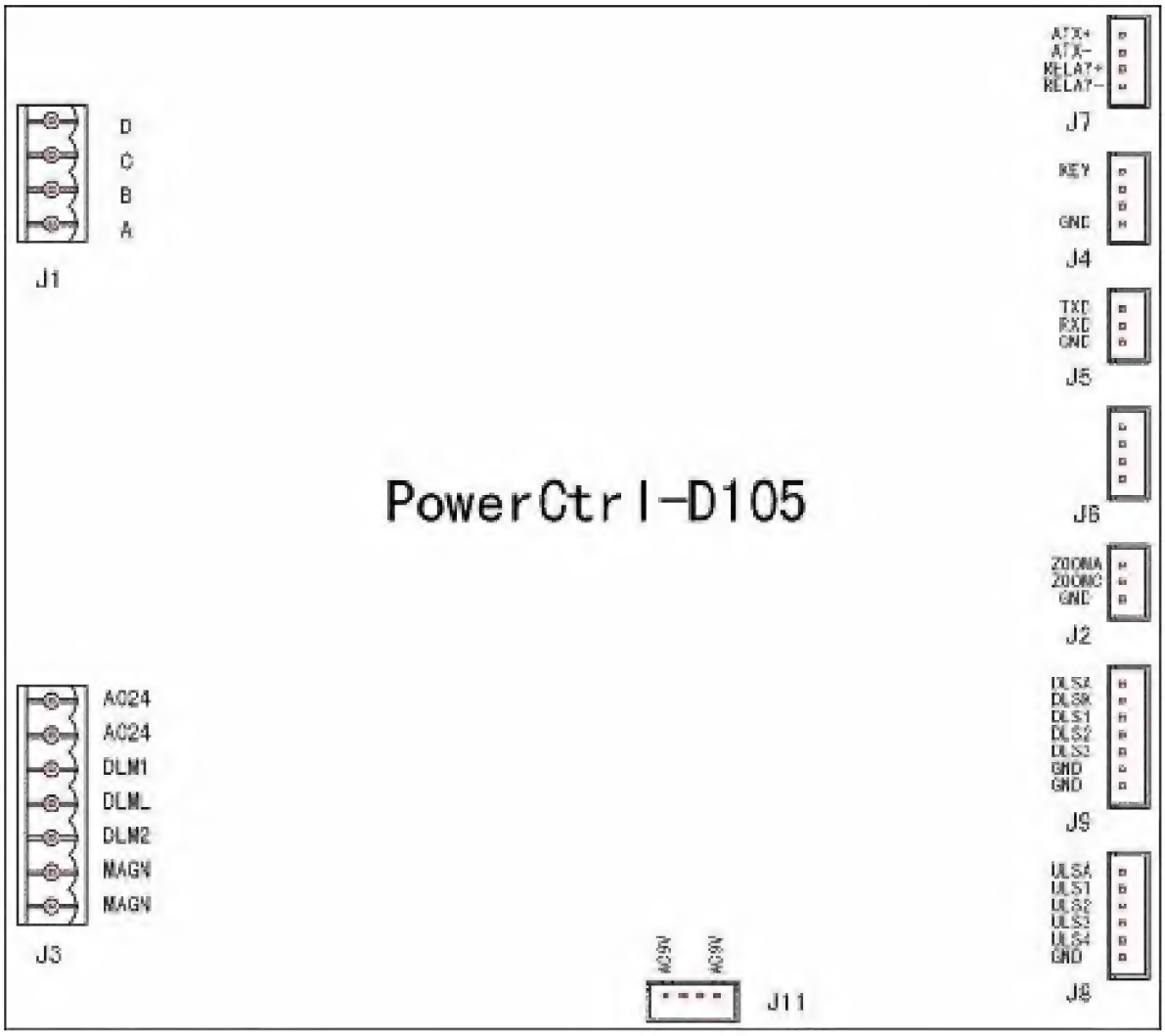
Connector code	SN	wire definition	function	wire #	wire color
J3	1	PADA	Lower paper magazine paper loading step motor phase A	B301	Red
	2	PADB	Lower paper magazine paper loading step motor phase B	B302	Green
	3	PADC	Lower paper magazine paper loading step motor phase C	B303	blue
	4	PADD	Lower paper magazine paper loading step motor phase D	B304	yellow
J4	1	PAUA	Upper paper magazine paper loading step motor phase A	B401	Green
	2	PAUB	Upper paper magazine paper loading step motor phase B	B402	Purple
	3	PAUC	Upper paper magazine paper loading step motor phase C	B403	White
	4	PAUD	Upper paper magazine paper loading step motor phase D	B404	Grey
J5	1	PLA	Exposure platform synchro belt step motor phase A	B501	brown
	2	PLB	Exposure platform synchro belt step motor phase B	B502	orange
	3	PLC	Exposure platform synchro belt step motor phase C	B503	yellow
	4	PLD	Exposure platform synchro belt step motor phase D	B504	green
J7	1	COM	Serial port	C4B7	Black
	2				blue
	3				brown

Connector code	SN	wire definition	function	wire #	wire color
J8	1	BPA	Emitter of back printer sensor	B8	Brown
	2	BPC	Receiver of back printer sensor		Blue
	3	GND	GND of back printer sensor		black
J10	1		Standby	B10	
	2				
	3				
	4				
	5				
J11	1		standby		
	2				
	3				
	4				
	5				
J12	1	+5V	Lower paper magazine paper loading encoder	B12	Red
	2	DPEB			Yellow
	3	DPEA			green
	4	GND			Blue
	5	GND			shield
J13	1	BP1	Back printer head needle 1	B13	Red
	2	BP2	Back printer head needle 2		Yellow
	3	BP3	Back printer head needle 3		Green
	4	BP4	Back printer head needle 4		Blue
	5	BP5	Back printer head needle 5		Purple
	6	BP6	Back printer head needle 6		White
	7	BP7	Back printer head needle 7		Black
	8	BP+	Back printer head needle power		
	9	BP+			Brown

Connector code	SN	wire definition	function	wire #	wire color
					green
J14	1	BM+	Back printer ribbon cassette motor	B1402	Brown
	2	BM+			
	3	BM-		B1401	blue
	4	BM-			
J15	1	+5V	Upper paper magazine paper loading encoder	B15	red
	2	UPEB			yellow
	3	UPEA			green
	4	GND			blue
	5	GND			shield
J16	1	GND	GND of cutter sensor	B16	yellow
	2	CUTC	Receiver of cutter sensor		red
	3	CUTA	Emitter of cutter sensor		brown
	4	GND	GND		black
	5	LDC	Receiver of paper loading sensor		white
	6	GND	GND of paper loading sensor		blue
	7	LDA	Emitter of paper loading sensor		green
J17	1	UPA	Emitter of upper paper magazine outlet sensor	B1701	brown
	2	UPC	Receiver of upper paper magazine outlet sensor		blue
	3	GND	GND of upper paper magazine outlet sensor		black
	4	DPA	Emitter of lower paper magazine outlet sensor	B1704	brown
	5	DPC	Receiver of lower paper magazine outlet sensor		blue

Connector code	SN	wire definition	function	wire #	wire color
	6	GND	GND of lower paper magazine outlet sensor		black
J18	1	+5V	Exposure platform synchro belt encoder	B18	red
	2	MPEB			yellow
	3	MPEA			green
	4	GND			blue
	5	GND			shield
J19	1	A24V1	AC 24V power input	K1	blue
	2	A24V2		K2	blue
	3	CUTA	Cutter motor	K4	brown
	4	CUTB		K3	blue
J20	1	OUTCOM	Serial port	J5B20	red
	2				yellow
	3				blue
	4				shield
J21	1	STAA	Emitter of Platform encoder sensor	B21	
	2	GND	GND of Platform encoder sensor		
	3	STAC	Receiver of Platform encoder sensor		
	4	GND	GND		shield

4.4 PowerCtrl PCB



Functions

- Provide AC Contactor control signal.
- Timer

Adjustment for replacement

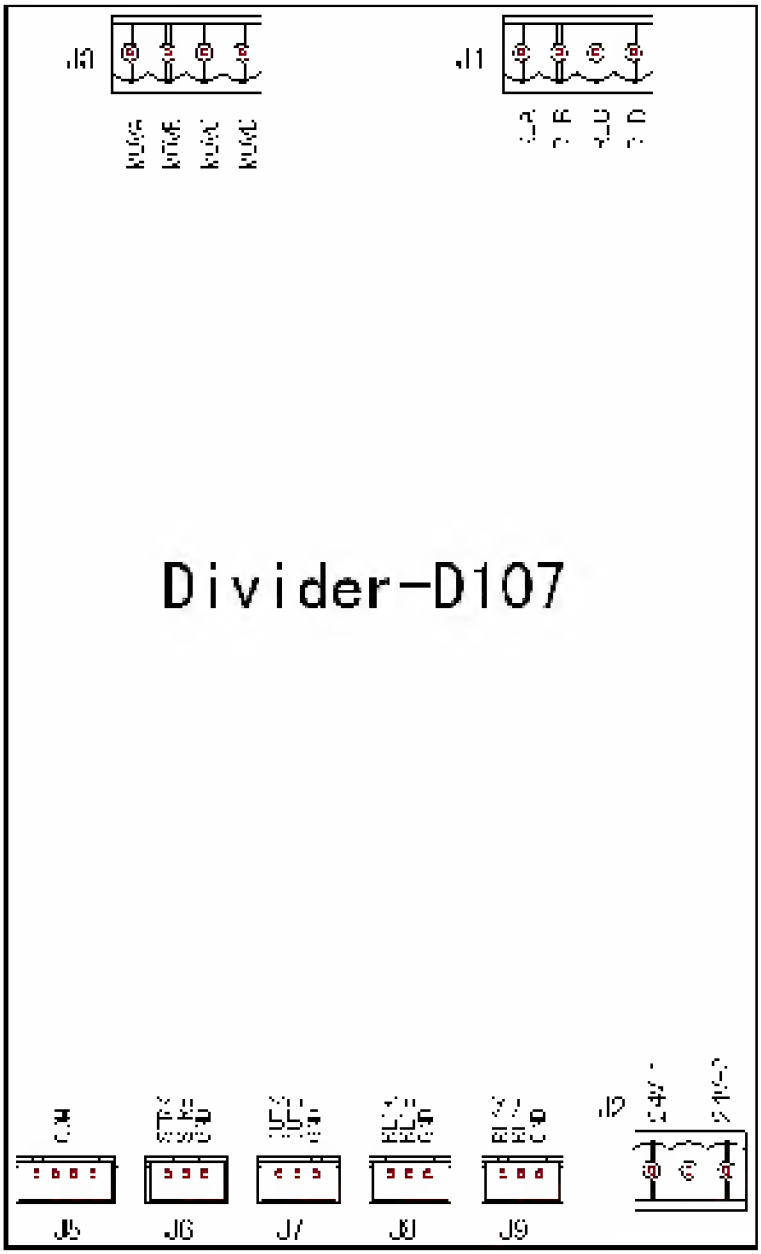
None

Disposition and description

Connector code	SN	wire definition	function	wire #	wire color
J1	1	A	standby		
	2	B			
	3	C			
	4	D			
J2	1	ZOOMA	standby		
	2	ZOOMC			
	3	GND			
J3	1	MAGN	standby		
	2	MAGN			
	3	DLM2			
	3	DLML	standby		
	4	DLM1			
	5	AC24V	AC24V power input	K5	black
	6	AC24V		K6	Black
J4	1	KEY	Drive power button	D4	brown
	2				
	3	GND			blue
	4				
J5	1	TXD	Serial port	C5D5	brown
	2	RXD			blue
	3	GND			black

Connector code	SN	wire definition	function	wire #	wire color
J6	1	ATXW1	standby		
	2	ATXW2			
	3	PC5V			
	4	GND			
J7	1	ATX+	standby	D7A7	red
	2	ATX-	standby		blue
	3	RELAY+	AC contactor control signal+		yellow
	4	RELAY-	AC contactor control signal -		black
J11	1	AC9V	Power input for timer	K7	brown
	2				
	3	AC9V	Power input for timer	K8	blue
	4				
J8	1	ULSA	standby		
	2	ULS1			
	3	ULS2			
	4	ULS3			
	5	ULS4			
	6	GND			
J9	1	DLSA	standby		
	2	DLSK			
	3	DLS1			
	4	DLS2			
	5	DLS3			
	6	GND			
	7	GND			

4.5 Divider PCB



Functions

- Supply power to lifting step motor.
- Receive signal from devider paper inlet and outlet photoelectric sensors.

Adjustment for replacement

- Set DIP switch to be the same as the previous board.

DIP switch of the Divider PCB definition:

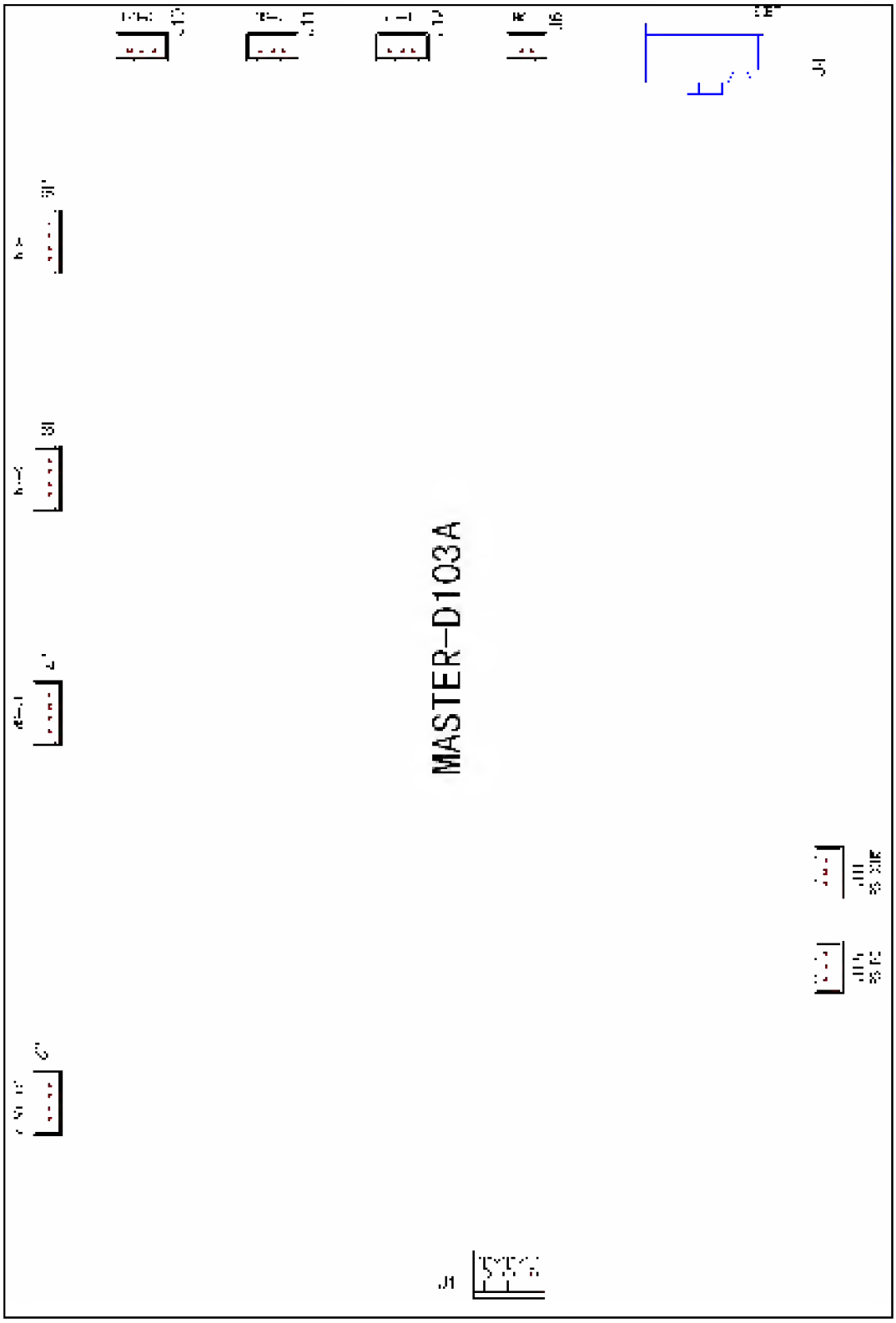
#	Factory default setting
1	OFF
2	OFF

Disposition and description

Connector code	SN	wire definition	function	wire #	wire color
J1	1	A	Shifting step motor	J101	Red
	2	B		J102	Green
	3	C		J103	Blue
	4	D		J104	Yellow
J2	1	24-2	AC 24V Power input	K3	white
	2				
	3	24-1		K4	white
J3	1	A	Lifting step motor of the separator	J301	red
	2	B		J302	green
	3	C		J303	blue
	4	D		J304	yellow
J5	1	COM	Serial port	J5B20	shield
	2				blue
	3				yellow
	4				red
J6	1	STRK	Divider inlet sensor	J6	blue
	2	STRE			white
	3	GND			black

Connector code	SN	wire definition	function	wire #	wire color
J7	1	OUTK	Divider outlet sensor	J7	red
	2	OUTE			yellow
	3	GND			green
J8	1	RL1K	Shifter home position sensor	J8	Red
	2	RL1E			Green
	3	GND			shield
J9	1	RL1K	standby		
	2	RL1E			
	3	GND			

4.6 Master PCB



Functions

- Supply power to LED matrix.
- Supply power to twister X and Y direction step motors, lens switching motor.
- Receive signal from lens home position and twister X and Y direction home position photoelectric sensors.

Adjustment for replacement

- Redo Morning setup for all paper magazines.

2.1 Morning setup

Program loading

1. On DL-2300 Windows PC locate and run **BINSEND** (usually in the **DL-2300** folder).

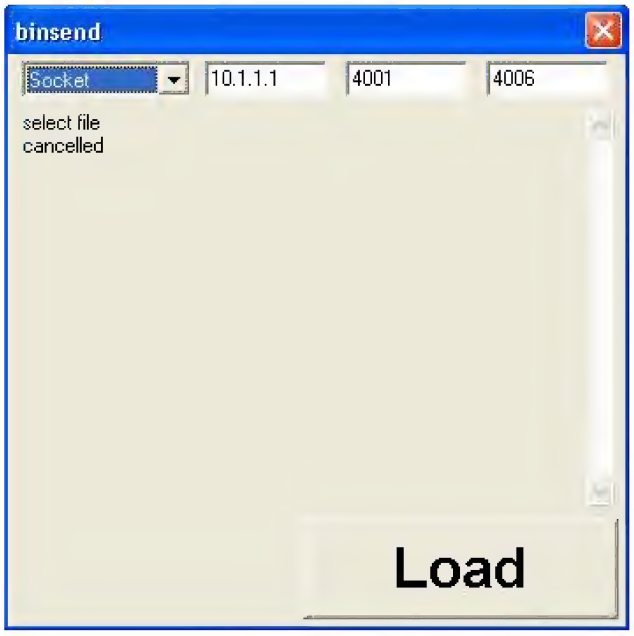


Fig 4.6.1

2. Click **Load** and specify the master PCB program file.

(Usually in the **DL-2300** folder, the file is named according to the LCD model of your machine

Chapter 2 Maintenance > **Prologue** for identifying the LCD model of your machine)

LCD model	Program name
Sony 036	Mhr10.LBN
EPSON	Mhr04_TEST.LBN
Sony 028	Mhr04_TEST.LBN

Fig 4.6.2

The file name could no be t **Mhr04_TEST.LBN** because the software upgrade.

3. Click **Open** and then wait a few minutes until finish.
4. Cycle the drive power.

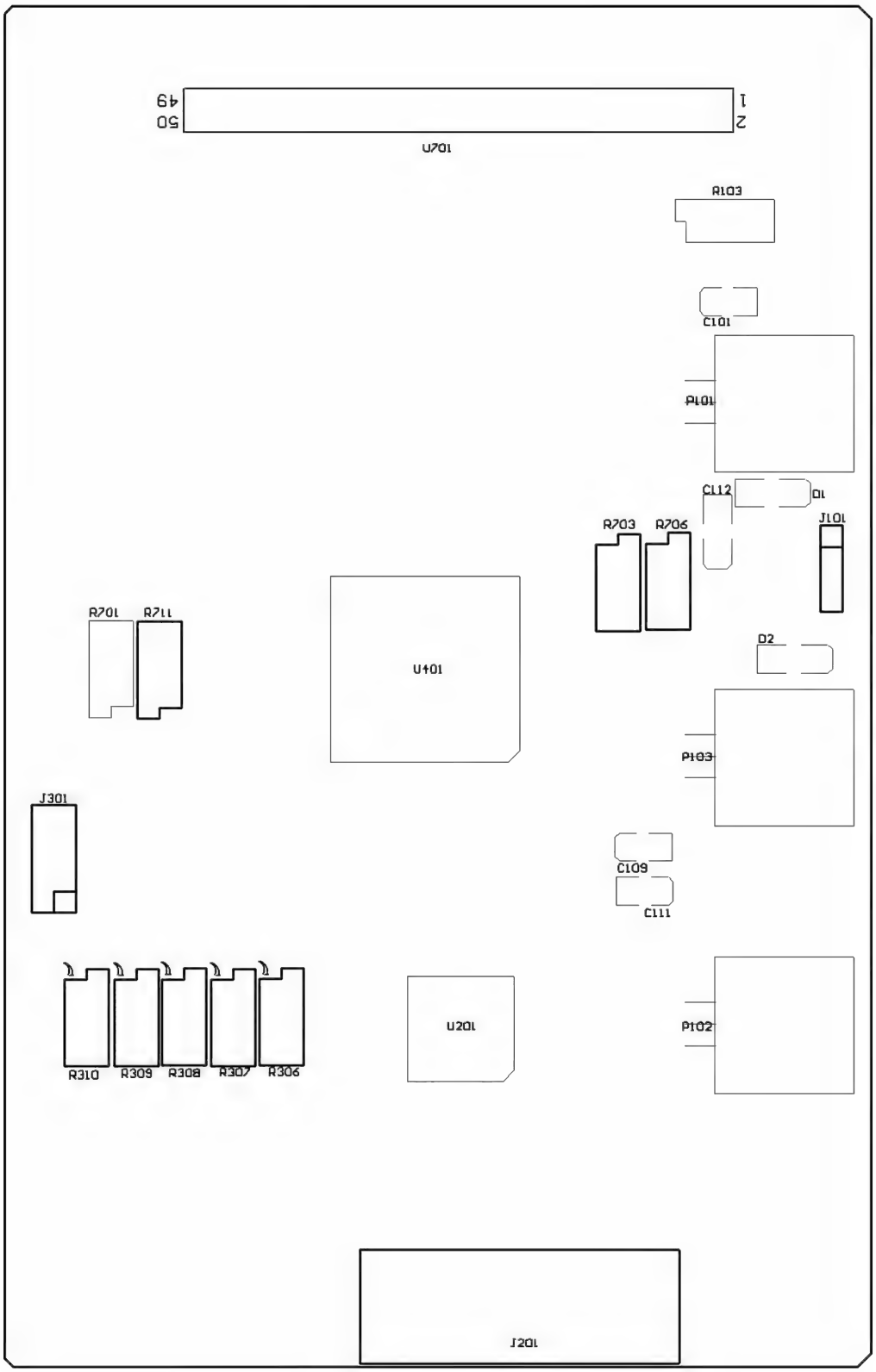
Disposition and description

Connector code	SN	wire definition	function	wire #	wire color
J1	1	24V-1	AC 24V power input	K3	brown
	2				
	3	24V-2		K4	blue
J2	1	GND	standby	J2	black
	2	+5V			red
	3	GND			black
	4	+20V			yellow
J6	1	GND	LED cooling fan	J6	black
	2	+5V			red
J7	1	A+	Step motor X	J7	red
	2	B+			yellow
	3	A-			green
	4	B-			blue
J8	1	A+	Step motor Y	J8	brown
	2	B+			red
	3	A-			orange
	4	B-			yellow
J9	1	A+	Lens switching step motor		red
	2	B+			yellow
	3	A-			green
	4	C-			blue
J10	1	GND	Home position sensor of step motor Y	J10	purple
	2	C			blue
	3	A			green

Connector code	SN	wire definition	function	wire #	wire color
J11	1	GND	Home position sensor of step motor X	J11	black
	2	C			white
	3	A			grey
J12	1	GND	Home position sensor of Lens switching sensor	J12	orange
	2	C			red
	3	A			brown
J4			LED Power supply		
J15	1		COM to Linux server	MASTER	blue
	2				red
	3				yellow
J16	1		COM to Washcontrol PCB	C12	blue
	2				red
	3				Yellow

4.7 LCD driver board

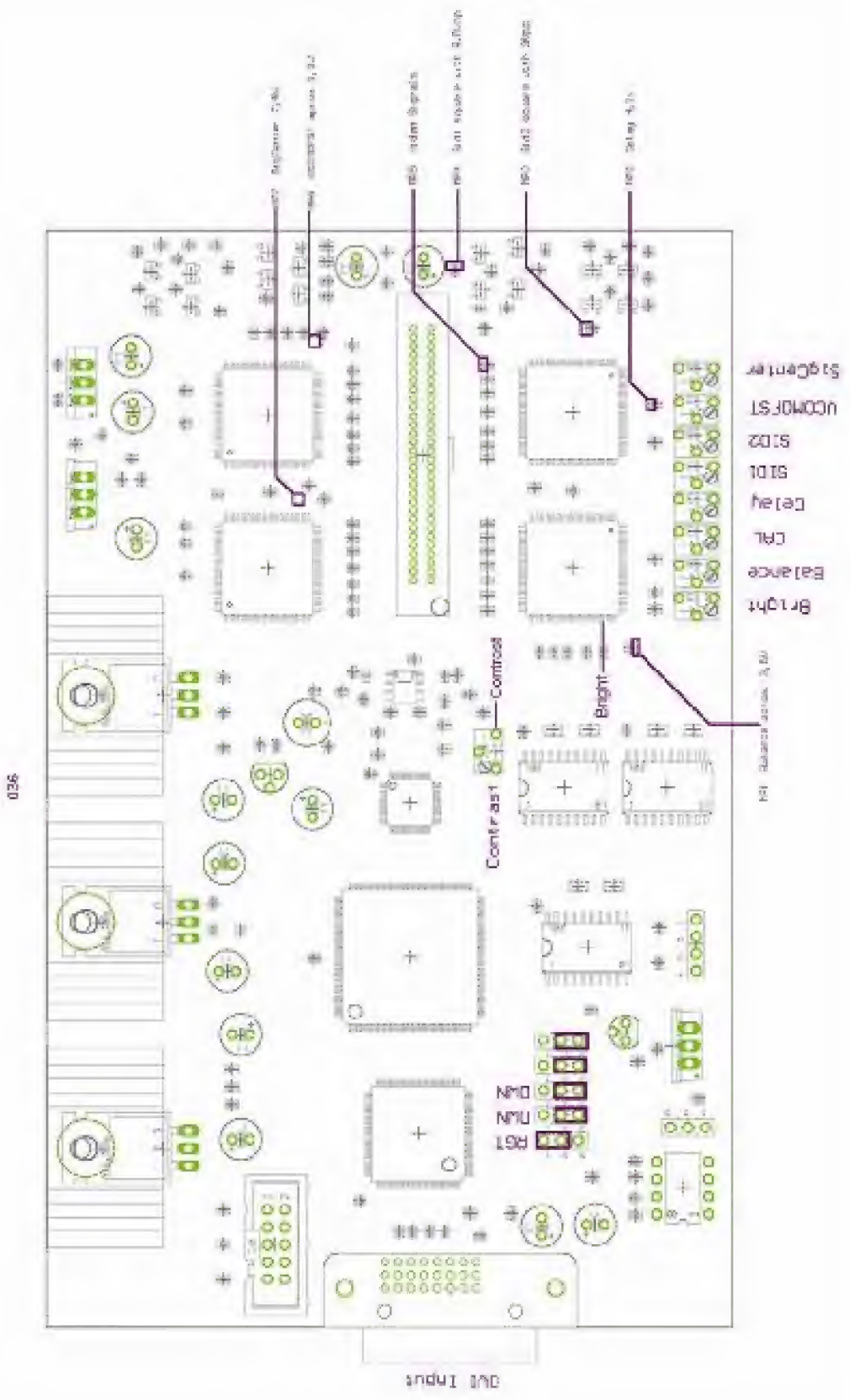
EPSON LCD driver board



Disposition and description

Connector Name	function
DVI Port	Signal input; connect to DVI port of Linux server video card.
50 pins socket	Signal output; connect to LCD.
4 pins socket	Switching Power supply input
10 pins socket	Programmed port

Sony 036 LCD Driver board



Disposition and description

Connector Name	function
DVI Port	Signal input; connect to DVI port of Linux server video card.
60 pins socket	Signal output; connect to LCD.
4 pins socket	Switching Power supply input
10 pins socket	Programmed port

Functions

- Translate information from Linux server video card to LCD.

Adjustment for replacement

- Redo Morning setup for all paper magazines.

2.1 Morning setup

- Redo uniformity calibration for all lenses.

2.7 Uniformity calibration

Don't touch the trimmers on board anytime unless you are requested and follow an instruction. Otherwise it could cause serious photo problems.

Delay calibration of Sony 036 LCD drive board

When “ghost” appears on photos, delay calibration shall be performed.

Fig 4.7.1 A sample of “ghost”

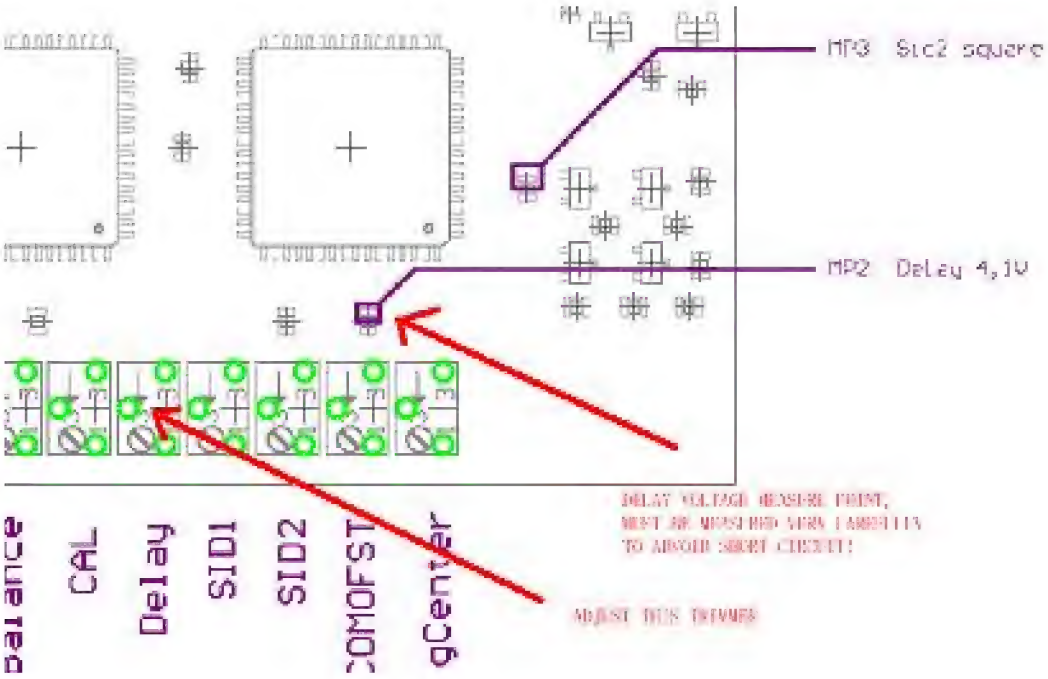
Precondition: exposure cover and LCD driver board cover have been removed.

Tools required: small flat screw driver, multi meter.

Steps:

1. On LCD driver board test DELAY voltage using a multi meter.

Test voltage between DELAY measure point and GND.



2. Adjust DELAY trimmer to change DELAY voltage and print test prints for each value,.Mark the corresponding value immediately on the test prints when they come out.

Test print #	Voltage value
0	original
1	+0.1V
2	+0.2V
3	+0.3V

4	+0.4V
5	+0.5V
6	-0.1V
7	-0.2V
8	-0.3V
9	-0.4V
10	-0.5V
…	

 During exposition, don't adjust DELAY trimmer.

3. Make comparison and pick the best one.
4. Adjust DELAY voltage to corresponding value of the best test print.

 If, for example, there are 3 test prints look about the same, then DELAY value shall be adjusted to the middle prints.

If all test prints are not good, try to make more voltage adjustment.

5. Redo Uniformity calibration for all Lenses.

 **2.7 Uniformity calibration > Quick Mask calibration for user**

4.8 Sensors

Illustration

Fig 4.8.1 Receiver of transmission type photographic sensor (single cell)

Fig 4.8.2 Emitter of transmission type photographic sensor (single cell)

Fig 4.8.3 Emitter of transmission type photographic sensor (dual cell)

Fig 4.8.4 Receiver of transmission type photographic sensor (dual cell)

Fig 4.8.5 Cassette ID sensor

Fig 4.8.6 Working tank or waste tank level sensor

Fig 4.8.7 Replenishing tank level sensor

Connector code	SN	wire definition	function	wire #	wire color
J8	1	BPA	Emitter of back printer sensor	B8	Brown
	2	BPC	Receiver of back printer sensor		Blue
	3	GND	GND of back printer sensor		black
J10	1		Standby	B10	
	2				
	3				
	4				
	5				
J11	1		standby		
	2				
	3				
	4				
	5				
J12	1	+5V	Lower paper magazine paper loading encoder	B12	Red
	2	DPEB			Yellow
	3	DPEA			green
	4	GND			Blue
	5	GND			shield
J13	1	BP1	Back printer head needle 1	B13	Red
	2	BP2	Back printer head needle 2		Yellow
	3	BP3	Back printer head needle 3		Green
	4	BP4	Back printer head needle 4		Blue
	5	BP5	Back printer head needle 5		Purple
	6	BP6	Back printer head needle 6		White
	7	BP7	Back printer head needle 7		Black
	8	BP+	Back printer head needle power		
	9	BP+			Brown

Connector code	SN	wire definition	function	wire #	wire color
J8	1	BPA	Emitter of back printer sensor	B8	Brown
	2	BPC	Receiver of back printer sensor		Blue
	3	GND	GND of back printer sensor		black
J10	1		Standby	B10	
	2				
	3				
	4				
	5				
J11	1		standby		
	2				
	3				
	4				
	5				
J12	1	+5V	Lower paper magazine paper loading encoder	B12	Red
	2	DPEB			Yellow
	3	DPEA			green
	4	GND			Blue
	5	GND			shield
J13	1	BP1	Back printer head needle 1	B13	Red
	2	BP2	Back printer head needle 2		Yellow
	3	BP3	Back printer head needle 3		Green
	4	BP4	Back printer head needle 4		Blue
	5	BP5	Back printer head needle 5		Purple
	6	BP6	Back printer head needle 6		White
	7	BP7	Back printer head needle 7		Black
	8	BP+	Back printer head needle power		
	9	BP+			Brown

Position

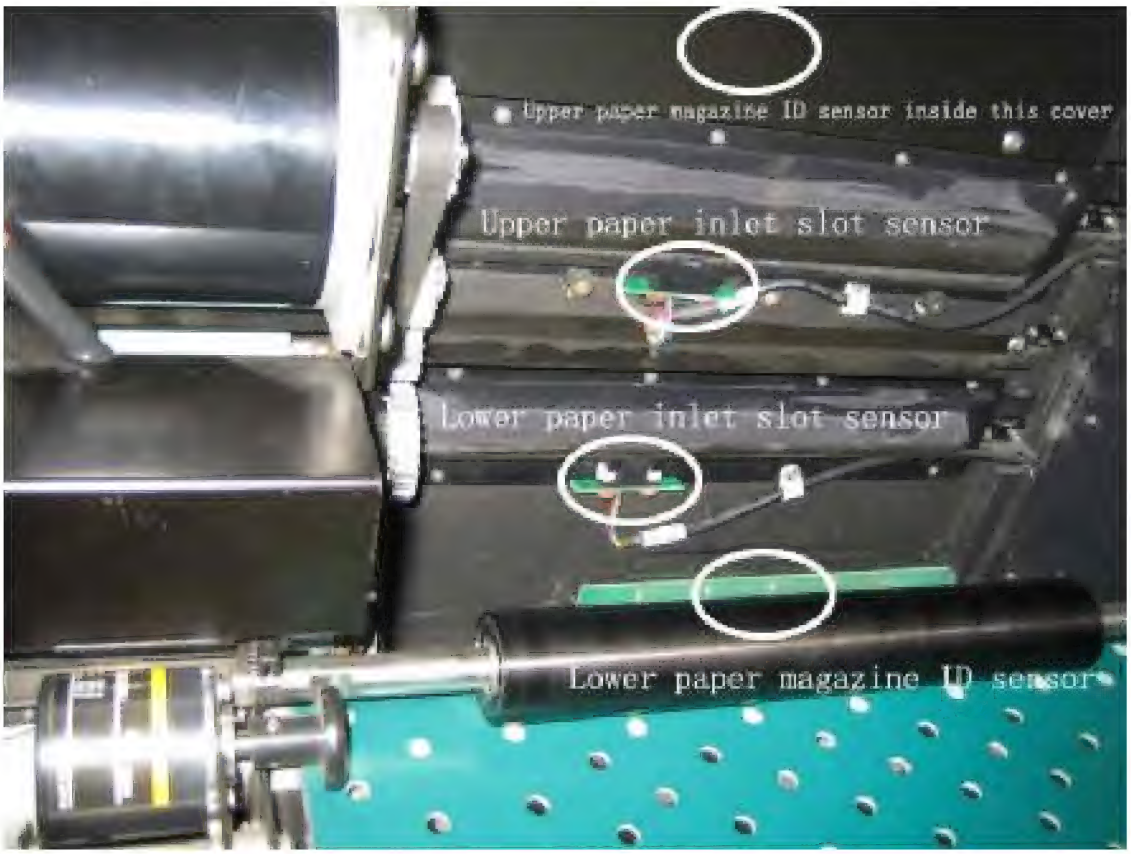


Fig 4.8.8

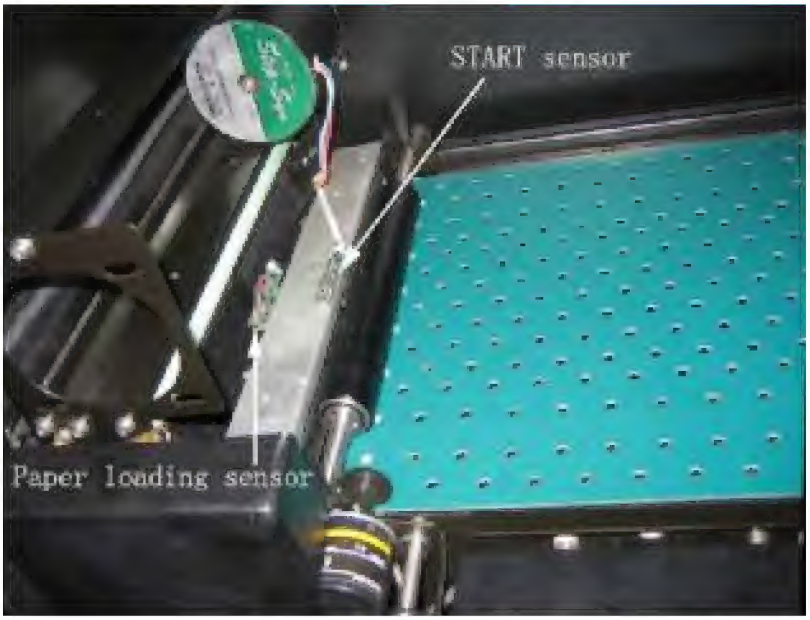


Fig 4.8.9

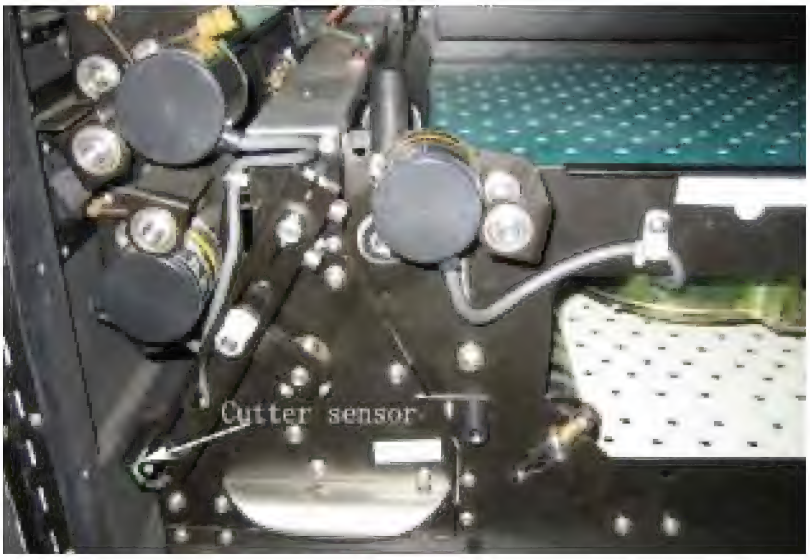


Fig 4.8.10

Fig 4.8.11

Fig 4.8.12

Fig 4.8.13

Fig 4.8.14

Fig 4.8.15

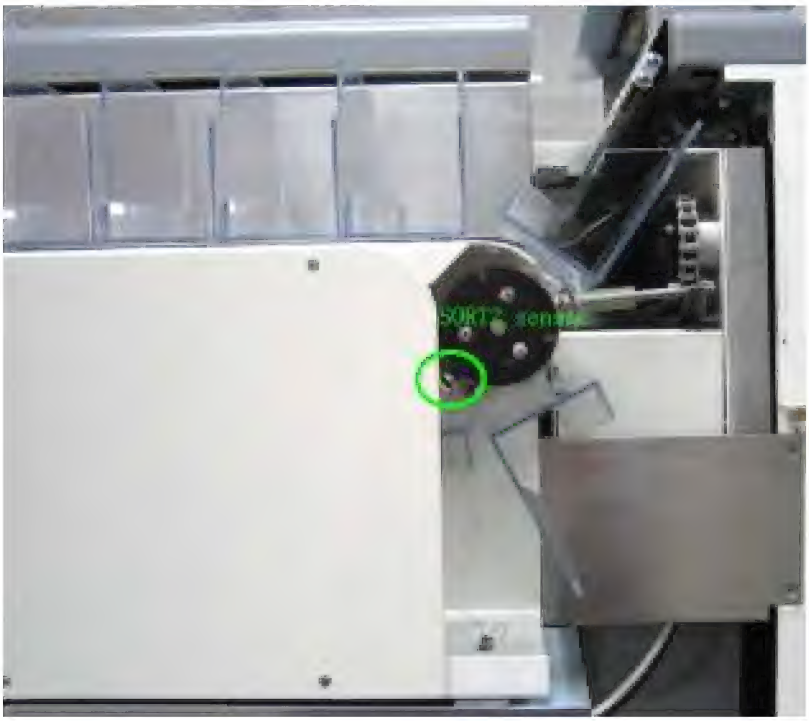


Fig 4.8.16

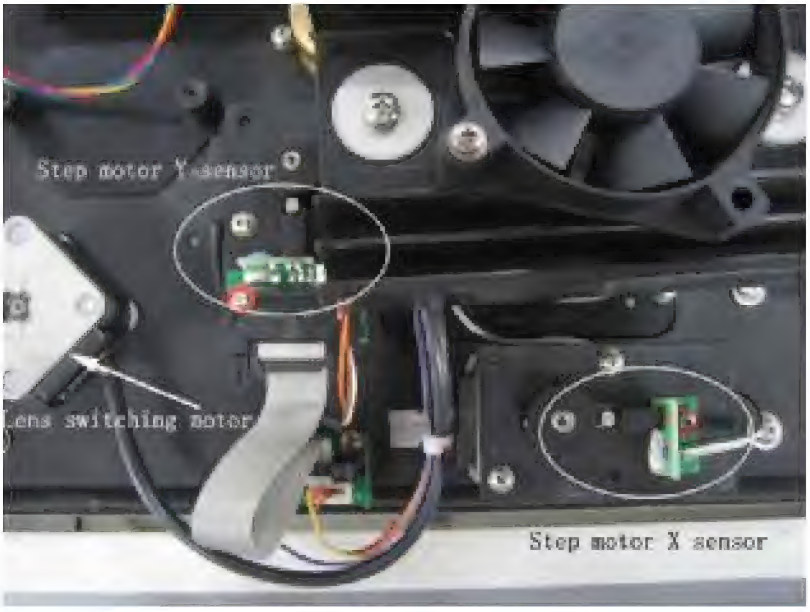


Fig 4.8.17

Fig 4.8.18

Sensor test

If a sensor is under suspicion of breakage, test the sensor as the following:

- On Platformctrl PCB and Washcontrol PCB, set DIP switch No.2 ON.
- Use a multi-meter to measure voltage between corresponding sensor voltage test point and GND, see the following illustration:

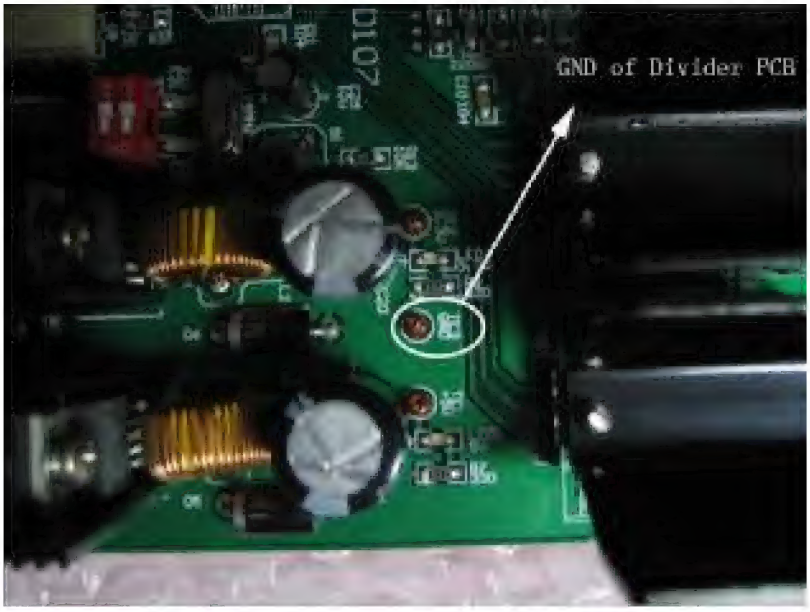


Fig 4.8.19

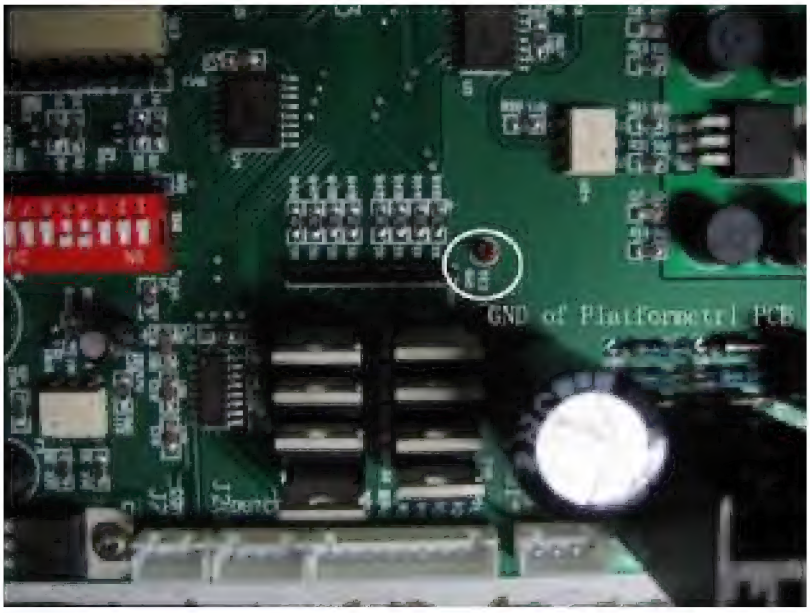


Fig 4.8.20

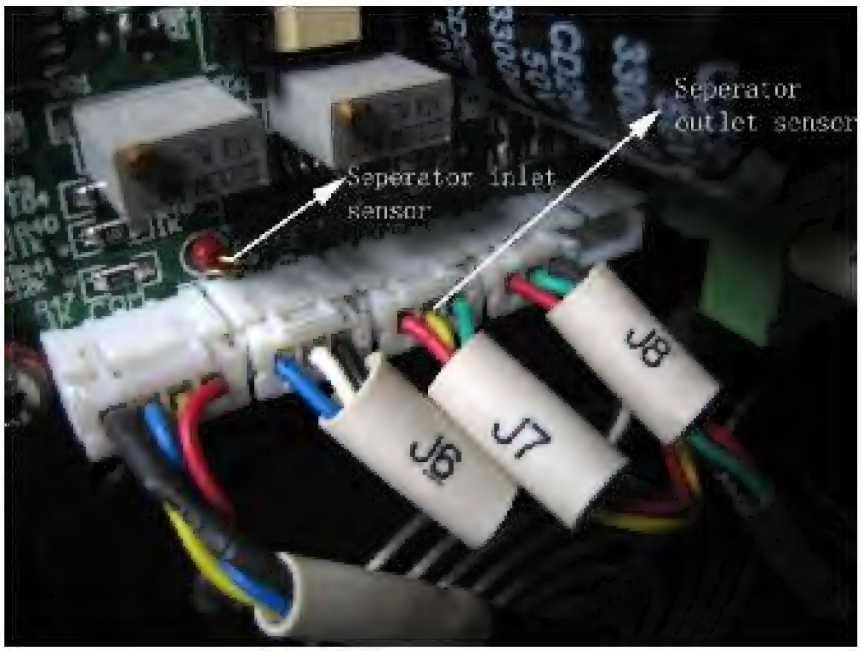


Fig 4.8.21

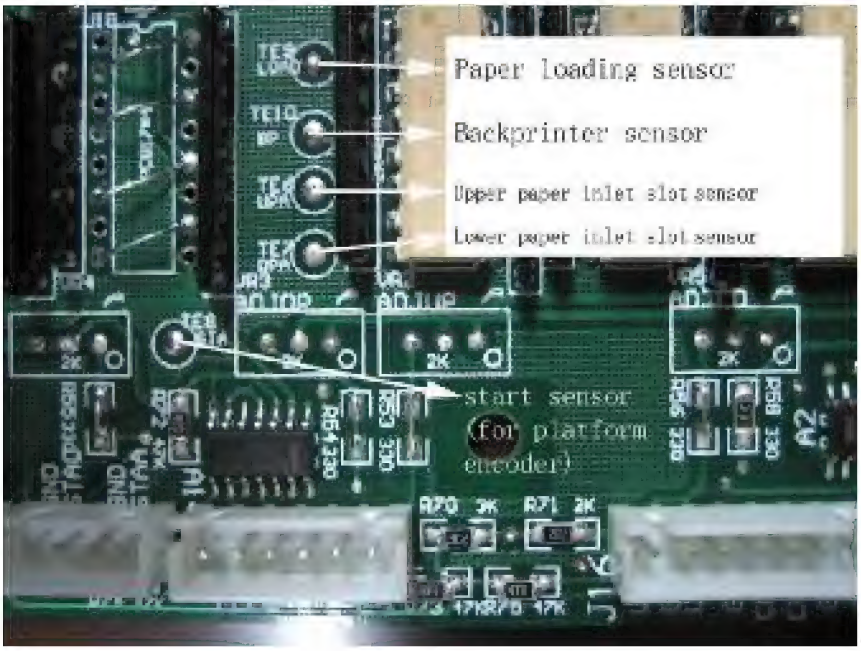


Fig 4.8.22

Insert a piece of paper in the middle of emitter and receiver of transmission sensor or put a piece of paper on top of reflection sensor for being detected.

Both situation must be tested for each sensor (either paper has been detected and has not been detected).

Sensor name	Being detected	Not being detected
Upper paper inlet slot sensor	<1V	>4V
Lower paper inlet slot sensor	<1V	>4V
Paper loading sensor	>4V	<1V
START sensor	>4V	<1V
Back printer sensor (Transmission type) If reflection type (some early machine) then it shall be measured <1V being detected, and >4V not being detected.	>4V	<1V
Separator inlet sensor	>4V	<1V
Separator outlet sensor	>4V	<1V

- After finish on Platformctrl PCB and Washcontrol PCB, switch DIP switch No.2 to OFF.

Replace the sensor if it is broken.

 When replacing sensor, don't lose the red insulating washer.

 There was a sensor and PCB upgrade in March of 2006, before the upgrade there were some adjustment required for the sensors. If you can see the trimmers which are illustrated by Fig 4.8.23 and Fig 4.8.24, then it means the Platformctrl PCB, Divider PCB, and the sensors haven't been upgraded.

If the PCBs and the sensors haven't been upgraded,and if the voltage is not correct during sensor test, then we need to adjust the trimmers with a small flat screw driver to make it correct.

Sensor name	Adjust trimmer
Upper paper inlet slot sensor	VR2
Lower paper inlet slot sensor	VR3
Paper loading sensor	VR5
START sensor	VR4
Back printer sensor	VR6
Separator inlet sensor	VR1 on Divider PCB
Separator inlet sensor	VR2 on Divider PCB

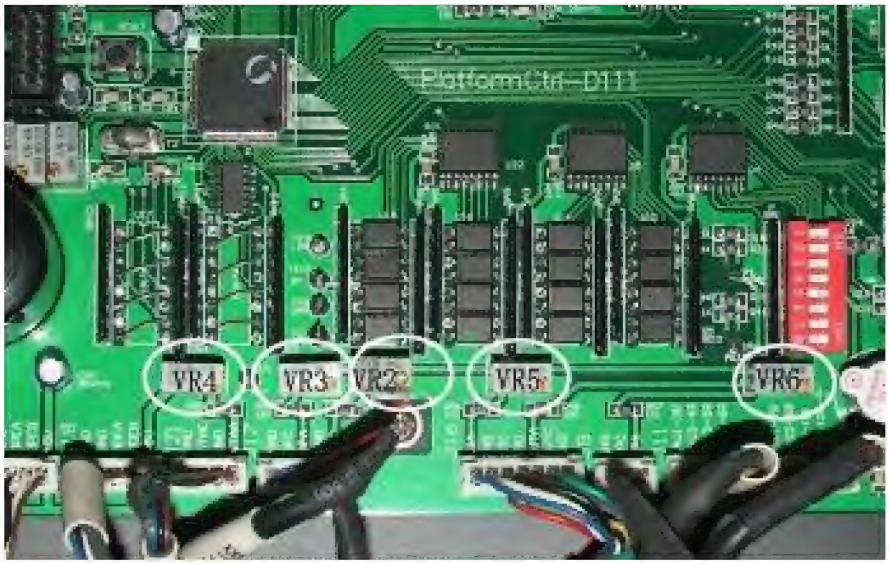


Fig 4.8.23

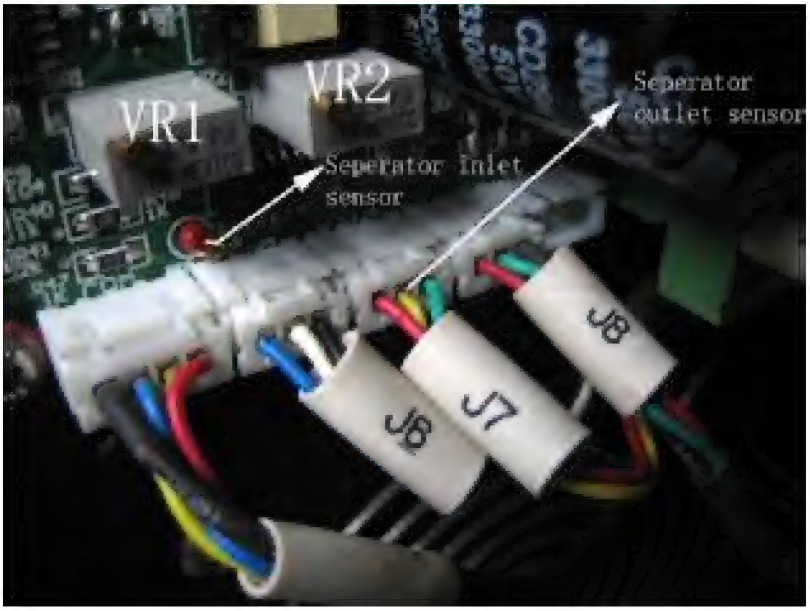
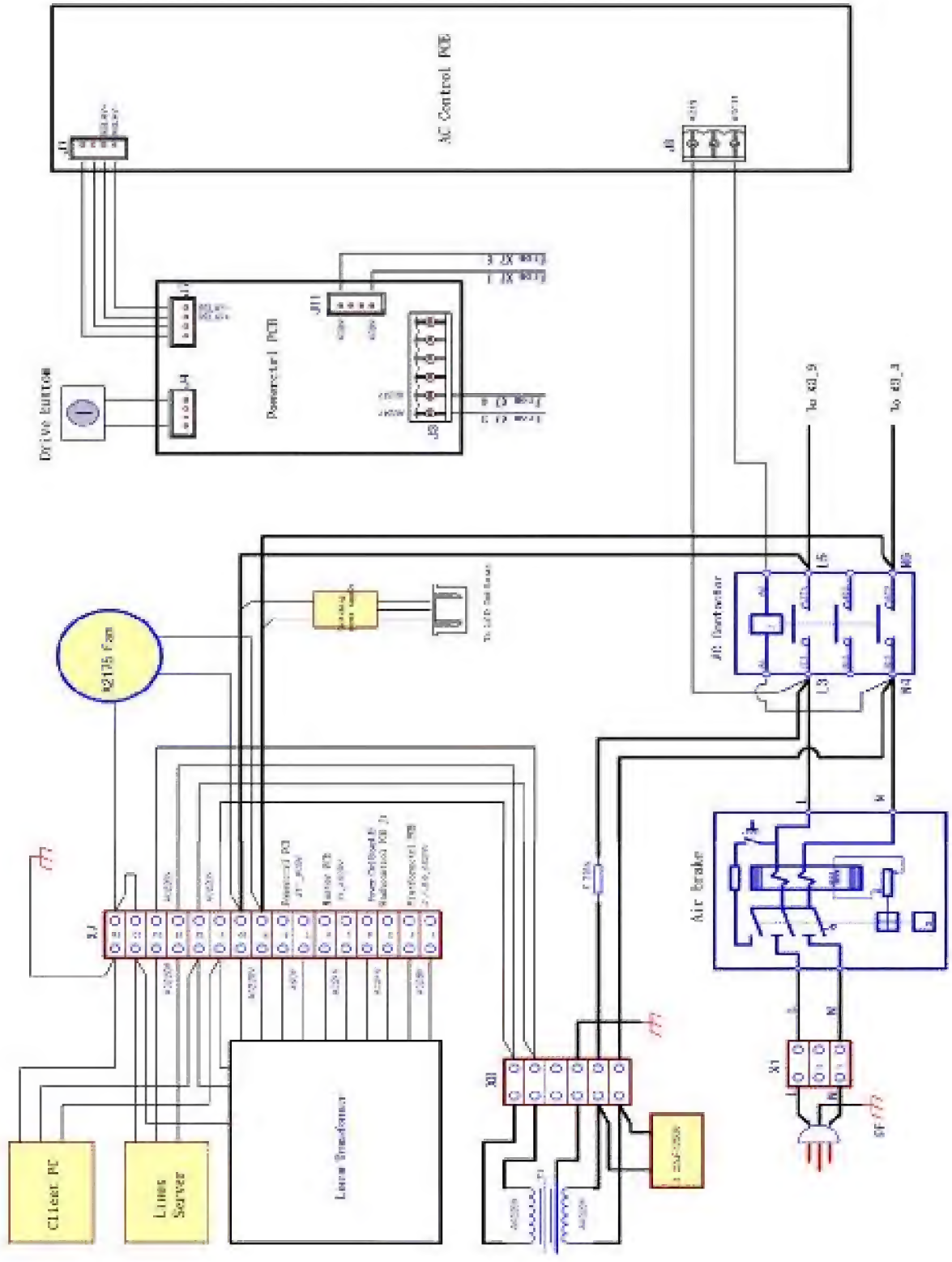


Fig 4.8.24

4.9 Illustration of main power supply



- **Printer and paper processor start logic**

After air switch has been set to ON, AC 220V is sent to Liner transformer, Liner transformer output AC9V(power supply for timer) and AC24V (power supply for Powerctrl PCB) is sent to Powerctrl PCB, Powerctrl PCB works, while a AC220V live wire connect to ACControl PCB J8 port via ACIN wire.

- By Drive button

1. Press Drive button, signal is sent to Powerctrl PCB J4 port.
2. Powercontrl PCB J7 port sends a signal to ACControl PCB J7 port via RELAY+ and RELAY- wire.
3. ACControl PCB J8 port ACOUT wire outputs AC220V to AC contactor to turn it ON.
4. AC contactor puts through the AC220V from air switch to printer and paper processor.

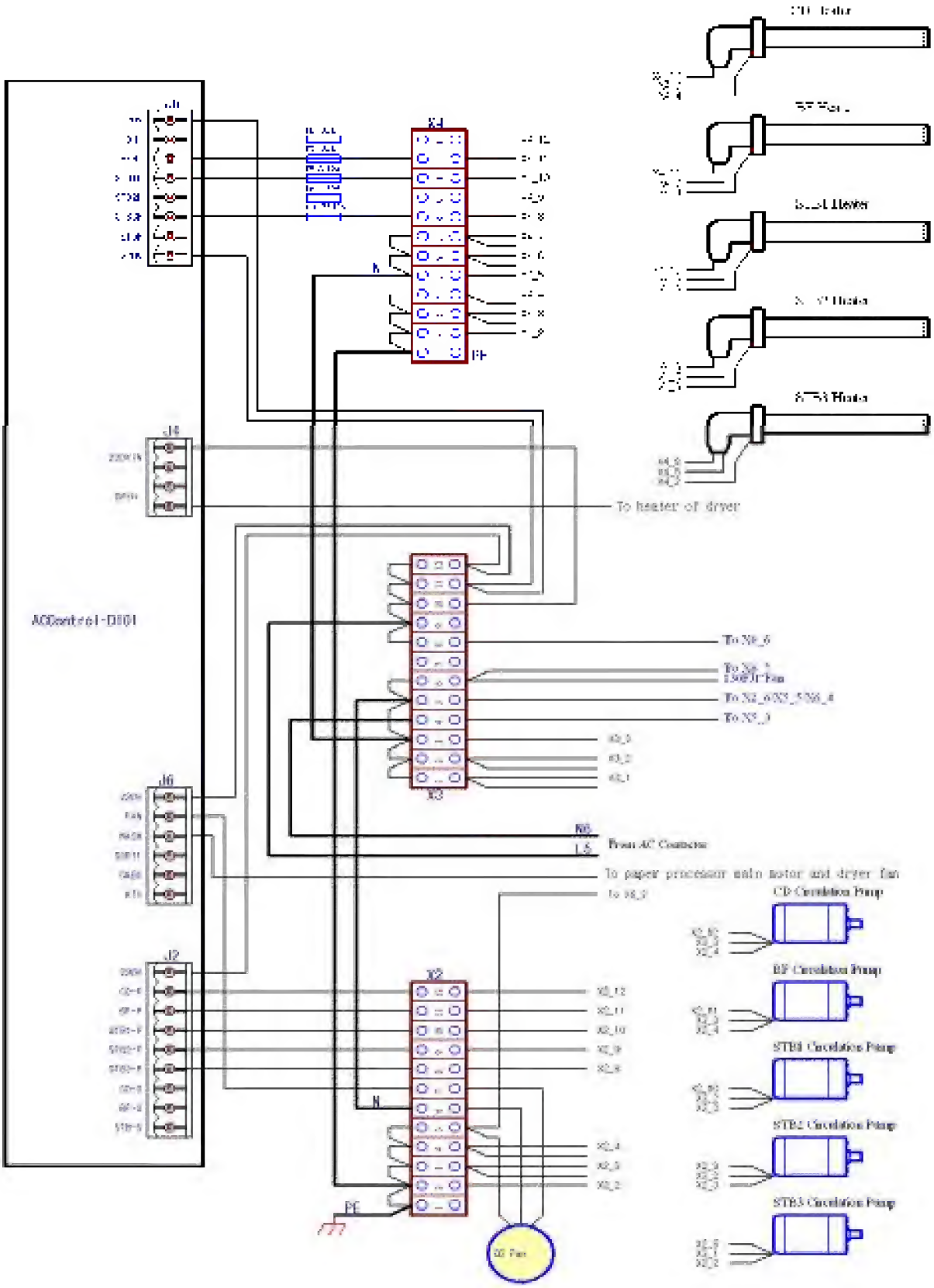
- By timer

When the timer reaches the set time:

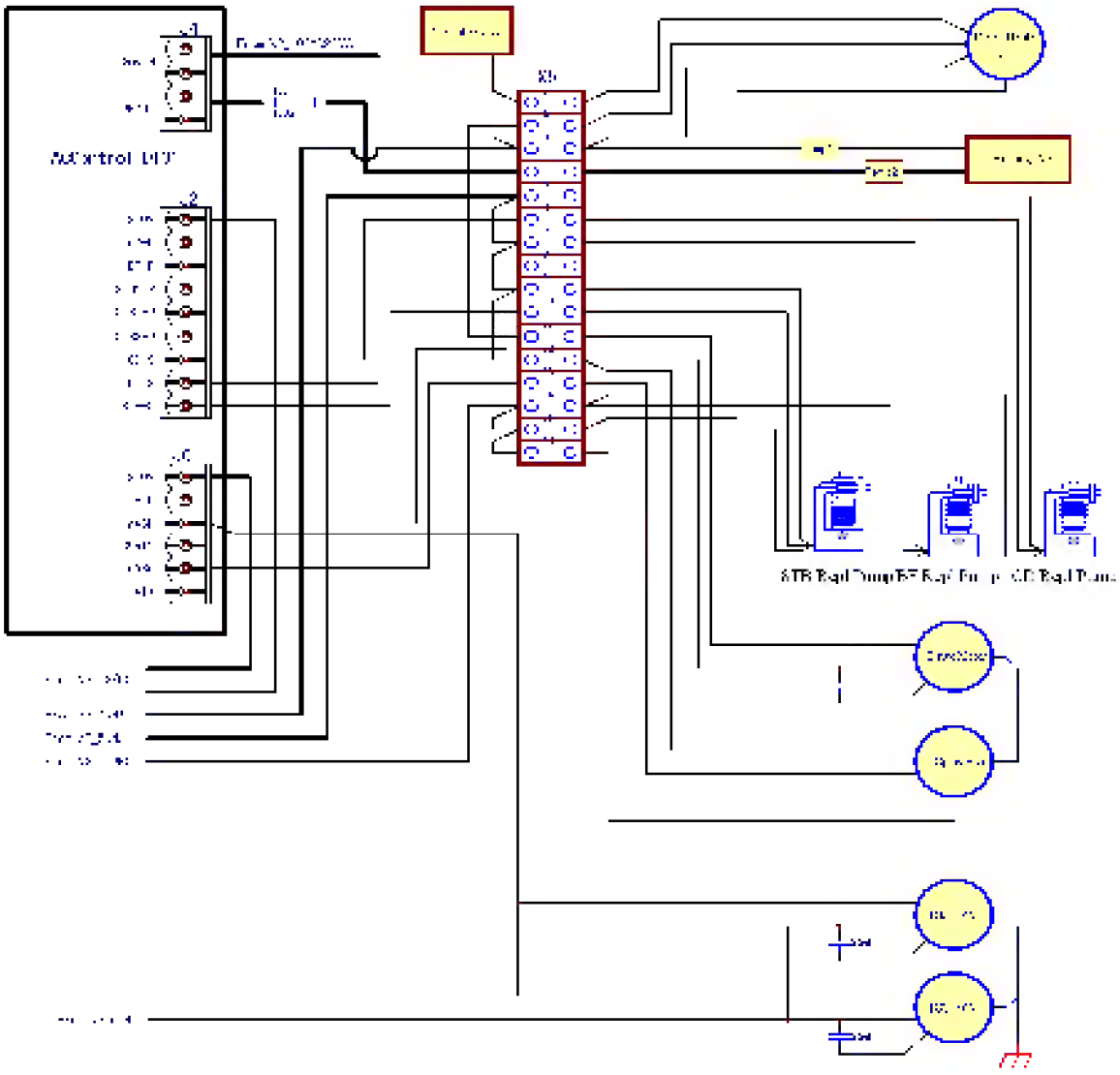
1. Powercontrl PCB J7 port sends a signal to ACControl PCB J7 port via RELAY+ and RELAY- wire.
2. ACControl PCB J8 port ACOUT wire outputs AC220V to AC contactor to turn it ON.
3. AC contactor puts through the AC220V from air switch to the printer and paper processor.

 The AC220V carried by ACControl PCB J8 port ACIN and ACOUT wire is only for turning the AC contactor on.

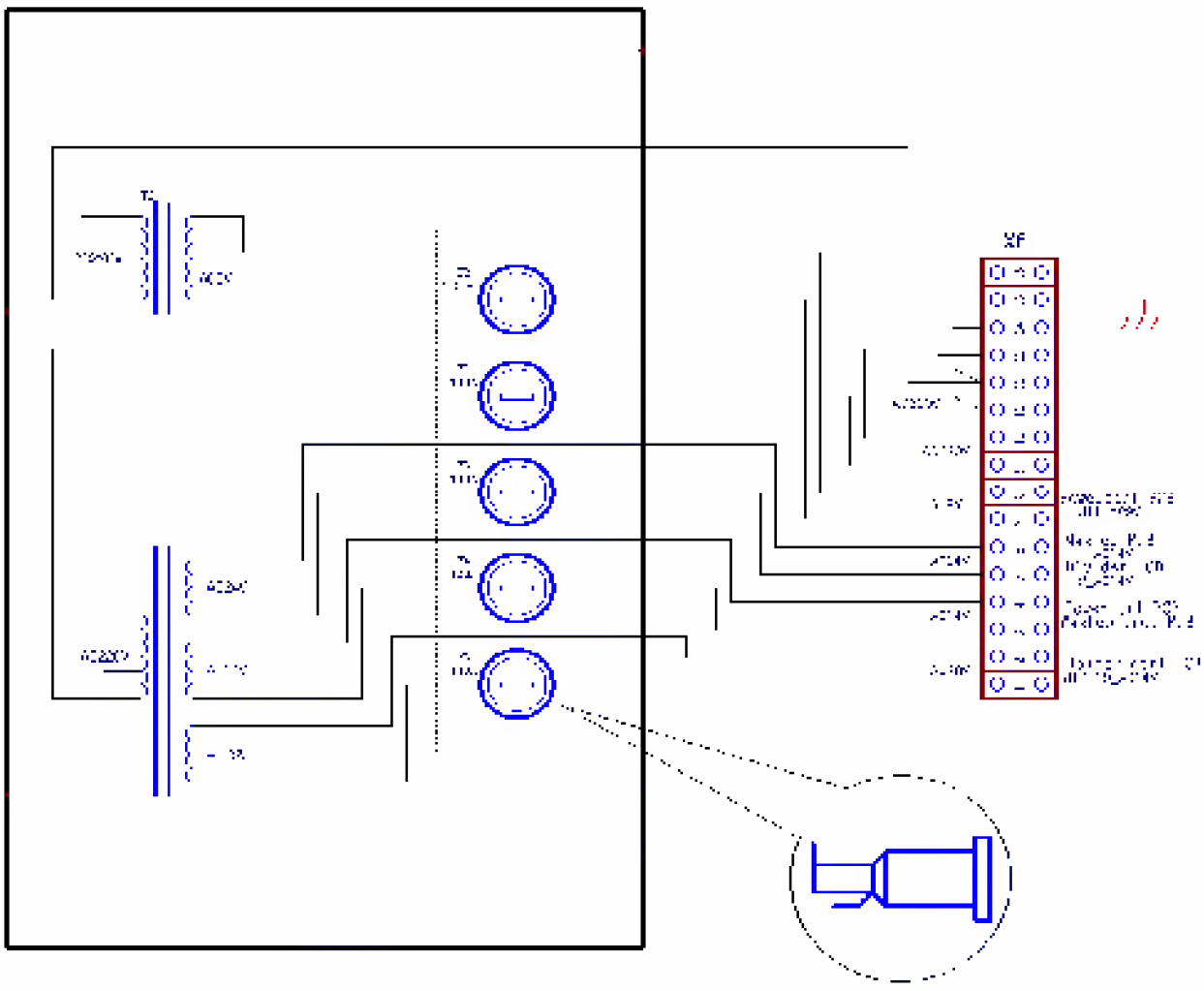
4.10 Illustration of AC power supply



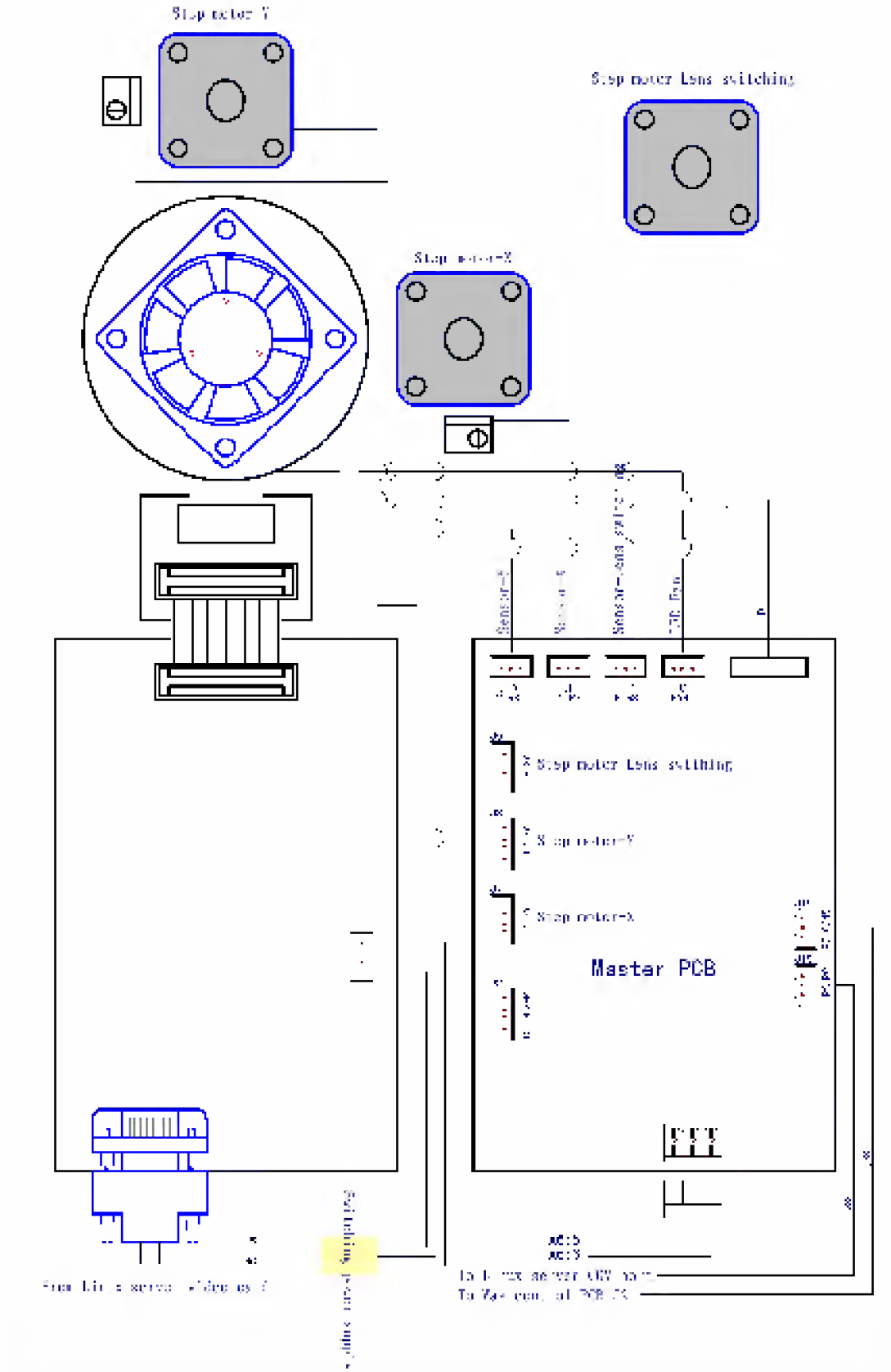
4.11 Illustration of wiring of dryer



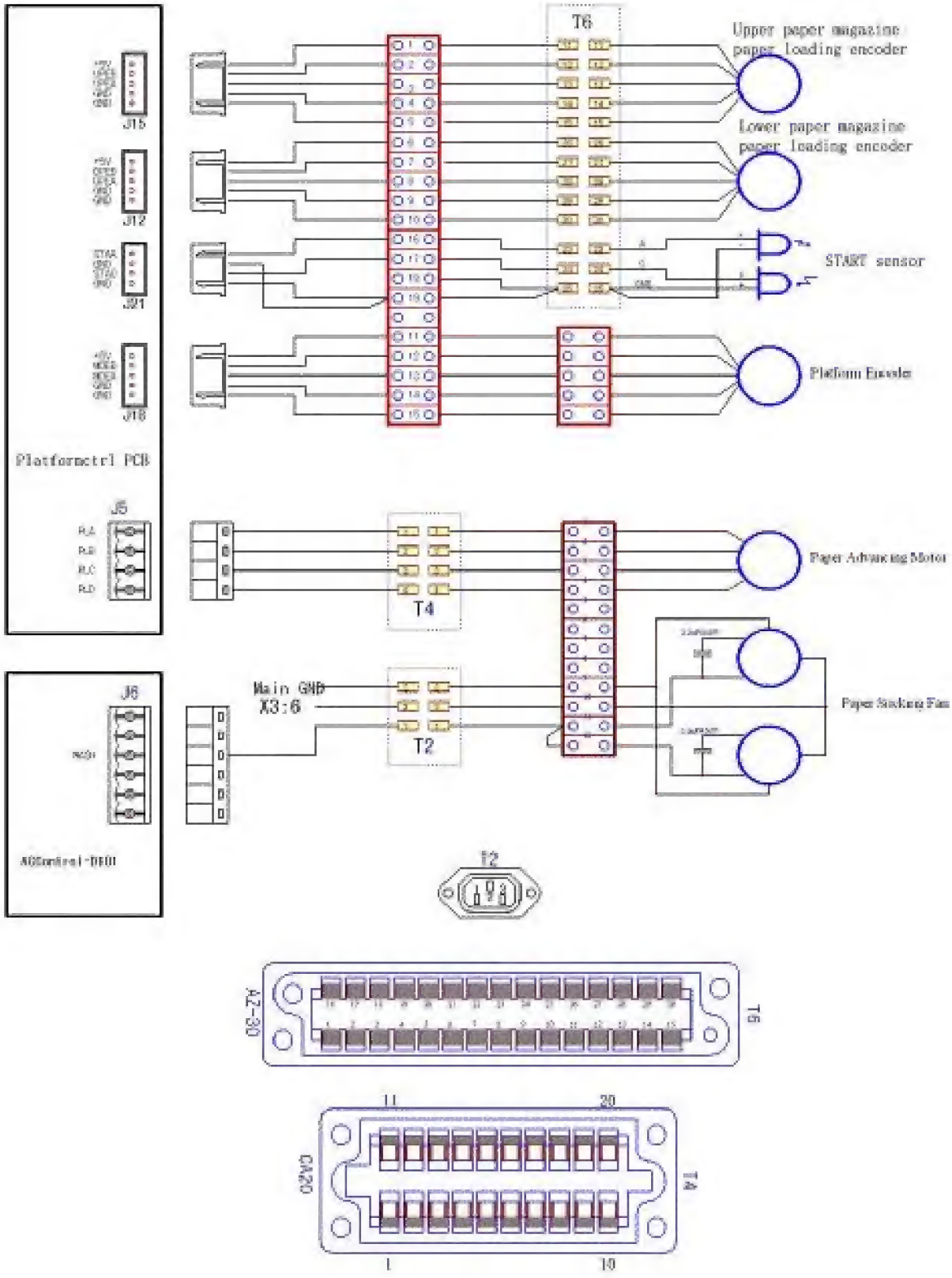
4.12 Illustration of wiring of transformer



4.13 Illustration of exposure head



4.14 Illustration of wiring of exposure platform

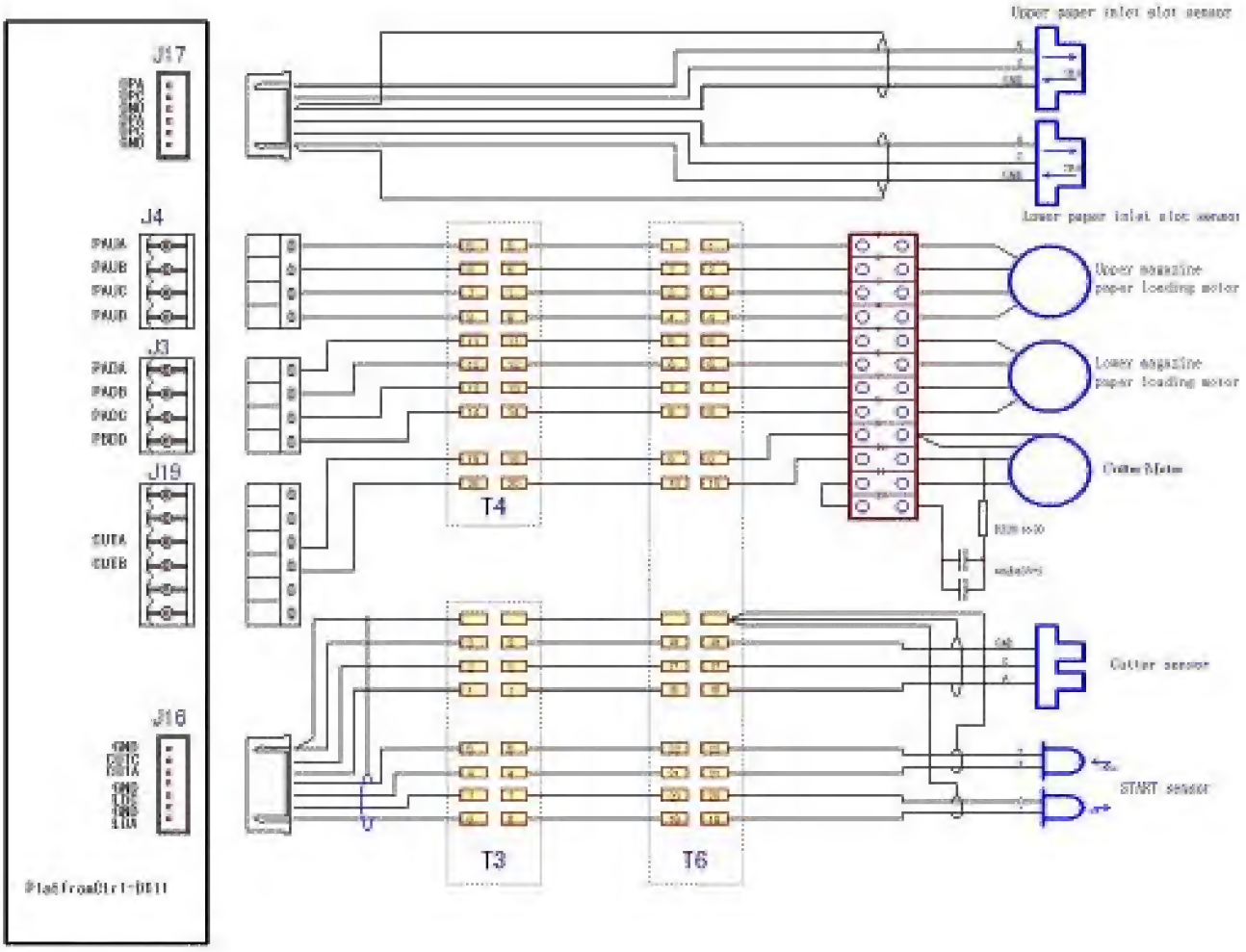


- **Definition of T6**

#	definition
11	Upper paper magazine paper loading encoder
12	
13	
14	
15	Shield of upper paper magazine paper loading encoder
23	START sensor emitter
24	START sensor receiver
25	START sensor GND
26	Lower paper magazine paper loading encoder
27	
28	
29	
30	Shield of lower paper magazine paper loading encoder

- **Definition of T4**

#	definition
1	Phase A of exposure platform synchro belt step motor
2	Phase B of exposure platform synchro belt step motor
3	Phase C of exposure platform synchro belt step motor
4	Phase D of exposure platform synchro belt step motor


J17
J4
PAUA
PAUB
PAUC
PAUD
J3
PADA
PADB
PADC
PADD
J19
CUEA
CUEB
J16
T4
T3
T6
Upper paper inlet slot sensor
Lower paper inlet slot sensor
Upper magazine paper loading motor
Lower magazine paper loading motor
Cutter Motor
Cutter sensor
START sensor


T3

- **Definition of T6**

#	definition
1	Phase A of upper magazine paper loading step motor
2	Phase B of upper magazine paper loading step motor
3	Phase C of upper magazine paper loading step motor
4	Phase D of upper magazine paper loading step motor
5	Phase A of lower magazine paper loading step motor
6	Phase B of lower magazine paper loading step motor
7	Phase C of lower magazine paper loading step motor
8	Phase D of lower magazine paper loading step motor
9	Cutter motor
10	
16	Cutter sensor emitter
17	Cutter sensor receiver
18	Cutter sensor GND
19	Paper loading sensor emitter
20	Paper loading sensor emitter GND
21	Paper loading sensor receiver
22	Paper loading sensor receiver GND

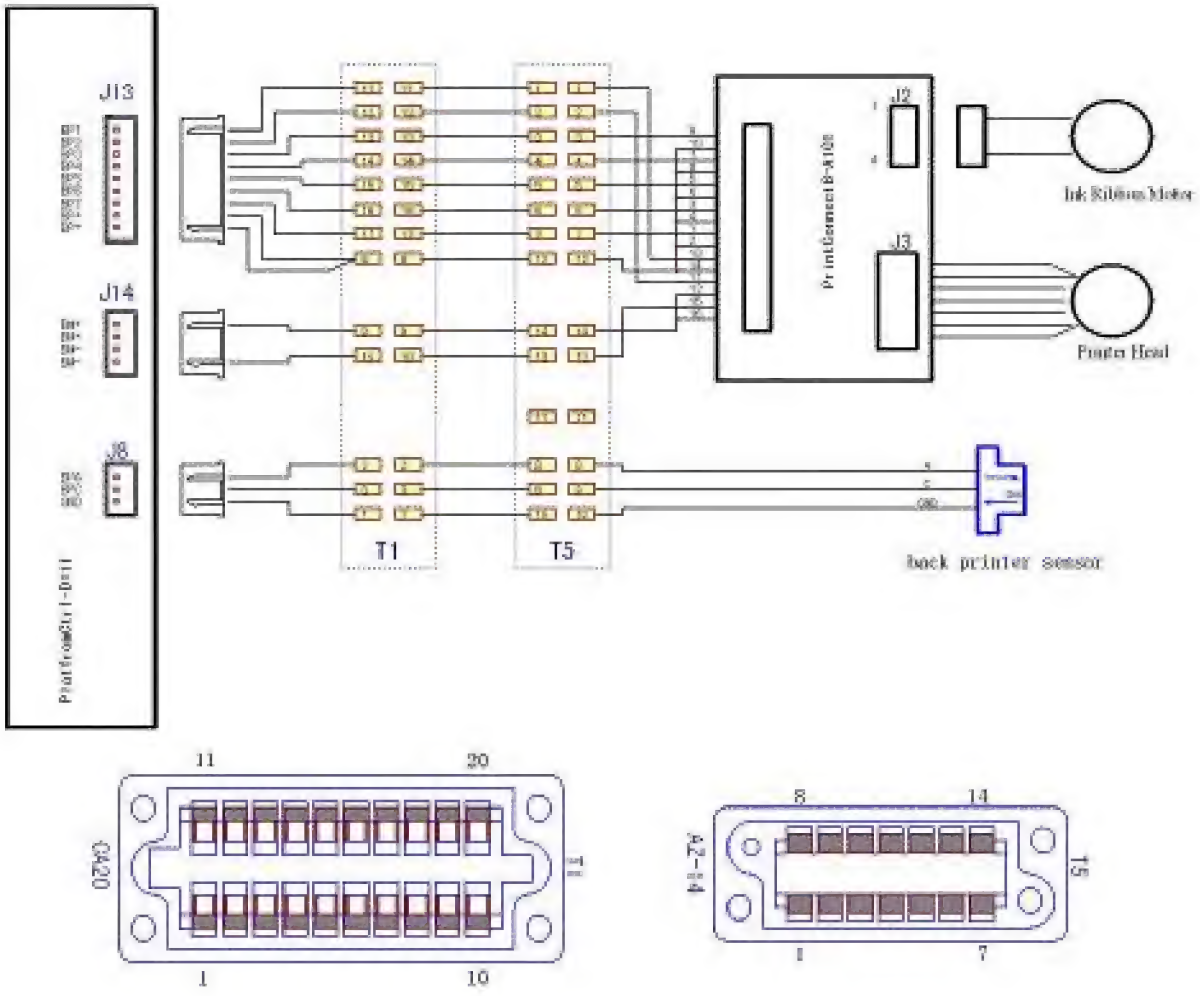
- **Definition of T3**

#	definition
1	Cutter sensor emitter
2	Cutter sensor receiver
3	Cutter sensor GND
4	Paper loading sensor receiver
5	Paper loading sensor receiver GND
6	Paper loading sensor emitter
7	Paper loading sensor emitter GND

- **Definition of T4**

#	definition
5	Phase A of upper magazine paper loading step motor
6	Phase B of upper magazine paper loading step motor
7	Phase C of upper magazine paper loading step motor
8	Phase D of upper magazine paper loading step motor
11	Phase A of lower magazine paper loading step motor
12	Phase A of lower magazine paper loading step motor
13	Phase A of lower magazine paper loading step motor
14	Phase A of lower magazine paper loading step motor

19	Cutter motor
20	



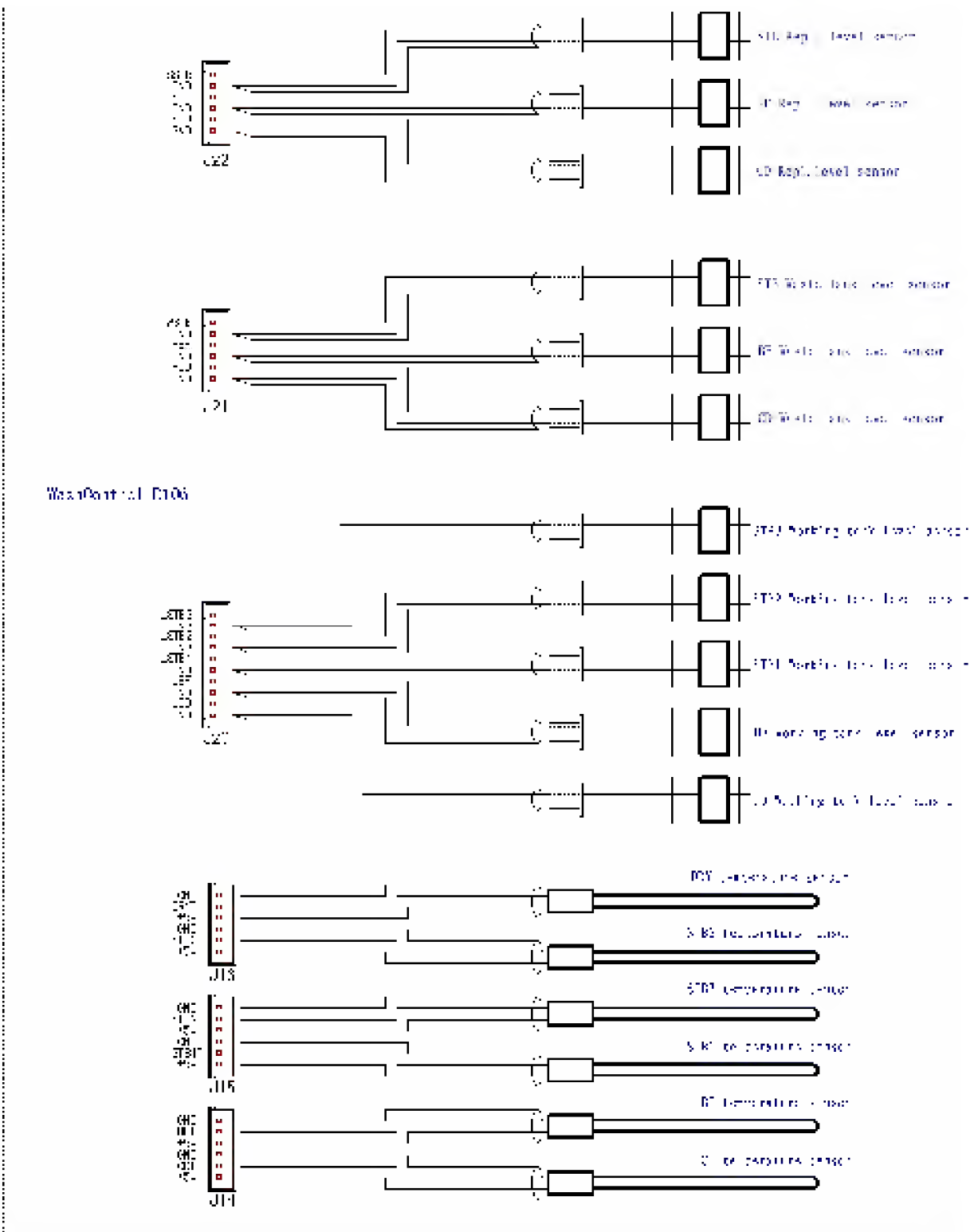
- **Definition of T1**

#	definition
1	Back printer sensor
2	
3	
8	DC16V
9	Ink ribbon motor (DC24V and GND)
10	Divider outlet sensor GND
11	Back printer needle 1
12	Back printer needle 2
13	Back printer needle 3
14	Back printer needle 4
15	Back printer needle 5
16	Back printer needle 6
17	Back printer needle 7

- **Definition of T5**

#	definition
1	Back printer needle 1
2	Back printer needle 2
3	Back printer needle 3
4	Back printer needle 4
5	Back printer needle 5
6	Back printer needle 6
7	Back printer needle 7
12	DC16V
13	Ink ribbon motor
14	

4.15 Illustration of Washcontrol PCB and corresponding sensors



5

Chapter 5 Trouble shooting

This chapter describe how to solve the troubles.

obtain the information about the regulations in force about the handling and correct disposal of chemistry from the country's authorities in charge.

1.4 Storage

The chemicals should be stored and prepared according to the manufacture's information and advice.

All Color papers must always be stored in a cool and dry place.

The best storage temperature is between 2℃ and 10℃.

Opened packages have to be stored at a relative humidity of 20-60%.

Storage at 20℃ over several days is possible without problems.

Storage temperatures above 30℃ should be avoided because they will cause visible alterations after only a few days.

5.1 Error index

Linux LCD Panel error messages

#	Description
003	Paper loading error
008	Cassette not setup
030	Separator blocked
031	No connection with master
032	Tape failure
033	Display failure
034	Photo preparation failure

Photo problems

#	Description
700	Photo comes out not dry
701	Paper scratch
705	Photo comes out dirty
706	Image out of focus
707	Color noise on the photo
708	Strong grid lines on the photo
709	Vertical lines on the photo
710	Color or density Uniformity of the photo is no good
711	Photos Chaos on sorter
712	White borders on the photo
713	Color is very different with the monitor preview
717	Paper length is shorter or longer than the setting length of the corresponding format
718	Image magnification or scale does not match the monitor preview
719	Photo overlapping
720	Back print is not clear
721	No back print

obtain the information about the regulations in force about the handling and correct disposal of chemistry from the country's authorities in charge.

1.4 Storage

The chemicals should be stored and prepared according to the manufacture's information and advice.

All Color papers must always be stored in a cool and dry place.

The best storage temperature is between 2℃ and 10℃.

Opened packages have to be stored at a relative humidity of 20-60%.

Storage at 20℃ over several days is possible without problems.

Storage temperatures above 30℃ should be avoided because they will cause visible alterations after only a few days.

5.2 Corrective actions

003 Paper loading error

1. The head of the paper roll is rough.?
   - ➢ Unwind paper and remove paper magazine.
   - ➢ Cut the rough paper head with scissors.
   - ➢ Install paper magazine back onto machine.
2. Paper has jammed in the cutter section.

Error 300 Paper has jam in the cutter section

008 Cassette not setup

The current cassette has not been registered in **Maintenance**.

- ➢ Run **Maintenance**.
- ➢ Click **Service**, and then click **cassettes**.
- ➢ Click **New**.
- ➢ Click the number of the current cassette ID to register the current cassette.

030 Separator blocked

1. Paper has jammed in divider.
   - ➢ Remove separator from machine.
   - ➢ Remove paper.
2. The J6 or J7 plug of Divider PCB is loose.
   - ➢ Shut down machine.
   - ➢ Check the J6 and J7 plug connection on Divider PCB.
3. The separator outlet sensor is broken.

   Test the separator outlet sensor, replace if it is broken.

4.8 Sensors

4. Divider PCB is broken.

   Replace the Divider PCB.

031 No connection with master

This message means no commutations between Linux server and Master PCB.

1. Drive power has not been turned on.

   Turn on Drive Power.

2. J15 or J16 plug of the Master PCB is loose.

   Shut down the machine and check the J15 and J16 plug connection.

3. The COM port plugs of Linux server mother board are loose.

   Shutdown the machine, Open front panel of the machine and then check the COM port plugs connections.

   3.4 Linux system backup and restore > Steps of Linux system recovery > Precondition

4. The program of the Master PCB has been lost.

   Reload the Master PCB program

   4.6 Master PCB > Program loading

5. Master PCB is broken.

   Replace Master PCB.

   4.6 Master PCB

032 Tape failure

On Linux LCD panel Press **C** button.

033 Display failure

1. J4 plug (supply power to LED) is disconnected or loose.

Plug in J4 plug.

2. LED has is broke.

Replace LED.

☞ 3.16 LED replacement

3. Master D-103 PCB is broken.

Replace Master D-103 PCB.

☞ 4.6 Master PCB

034 Photo preparation failure

1. Paper has jam at separator inlet.

Remove paper.

☞ 3.13 Separator disassembly

2. Paper is jammed in back printer.

Remove paper.

☞ 3.12 Cutter section and back printer section disassembly

3. Separator inlet sensor or back printer sensor is not sensitive.

☞ 4.8 Sensors > Sensor test

Replace the sensor.

300 Paper is jammed in cutter section

☞ 3.12 Cutter section and back printer section disassembly

Remove paper and restore cutter section to machine.

Check paper edge of paper magazine. It shall be cut properly before loading.

310 Replenishing pump doesn't work

1. The power switch of the replenishing pump has been set to OFF.

On replenishing pump set power switch to ON.

2. ACControl PCB is broken.

Run pump on Linux LCD panel for 30 seconds. During the run, measure the voltage between the corresponding wire of ACControl PCB J2 plug and N6 wire.

The voltage shall be measured at AC 220V, if not, replace ACControl PCB.

	Mark	definition
J2 plug of ACControl PCB	CD-S	CD replenishing pump power supply
	BF-S	BF replenishing pump power supply
	STB-S	STB replenishing pump power supply

2.10 Replenishing system setup for operation of running pump for 30 seconds.

N6 wire can be found after removing the wire HUB cover:

Fig 310.1 wire HUB cover

Fig 310.2 N6 wire position

3. Replenishing pump is broken.

   Replace replenishing pump.

311 Low replenishing flux

1. Replenishing pump efficiency setup is not correct.

2.10 Replenishing system setup

2. Regeneration doses setup is not correct.

2.10 Replenishing system setup

500 Linux Recovery failure

1. The BIOS setting of Linux server mother board is not correct.

   Configure BIOS of Linux server mother board.

3.4 Linux system backup and recovery

2. Motherboard model or video card model of Linux server is not correct.

   The hardware configuration of Linux server can not be changed.

3. Linux server hard disk cable, video card or memory bank are not installed properly.

   Check hard disk cable, video card and memory bank connection.

501 Can not connect to printer

This message appears on monitor of client PC.

1. Linux server has been shut down.

   Turn on Linux server.

2. Linux server has not startup completely.

   Wait a few seconds till Linux server startup finishes.

3. Network connection has been broken off.

   Check network cables and connectors of HUB.

4. IP address or Subnet mask of client PC is not correct.

   Set IP address and Subnet mask of client PC.

3.6 Client PC setup

504 Processing solution doesn't warm up

1. Fuse of the heater has been broken (Fig 504.1).

Fig 504.1

Shut down machine and replace fuse.

2. Heater of the corresponding working tank is broken.

   Shut down machine, and use a multi meter to test the resistance between the corresponding wire of AC Control PCB J4 plug and **N6** wire.

	Mark	definition
J5 plug of ACControl PCB	CDH	CD heater power supply
	BFH	BF heater power supply
	STB1H	STB1 heater power supply
	STB2H	STB2 heater power supply

Error 310 > **Fig 310.1** and **Fig 310.2** to find the N6 wire

   If the test value is more than 400ohm then heater is broke.

   Replace heater if it is broken.

3. ACControl PCB is broke.

   Replace ACControl PCB.

505 Linux startup failure

1. PCB and cable connection of Linux server is loose during shipment.

Check Linux server video card, memory bank shall be installed on the main board properly, and the hard disk connection shall be good.

2. Linux server is affected by moisture.

   Use a fan to dry Linux server, and restart Linux server after 15 minutes.

3. Linux main board CMOS data is lost.

   Connect a monitor and a keyboard to Linux server main board. On keyboard press **DEL** key when starting the Linux to enter CMOS, check the setting according to requirement, and then **save and exit**.

   Replace main board battery if necessary.

☞ 3.4 Linux system backup and recovery > Steps of Linux system recovery

4. Backup data and re-install Linux system, and then restore data using ISO CD (Linux recovery CD).

☞ 3.3 Data backup and restore

☞ 3.4 Linux system backup and recovery

700 Photo comes out not dry

1. Dryer temperature setting is too low.
   Increase dryer temperature in **Maintenance** > **Temperatures**.

2. Dryer temperature is not correct.

   Calibrate dryer temperature by **DJ218TEST**.

☞ 2.4 Temperature calibration

3. Processing solution is dirty.

   Dirty solution could cause sticky photos.

   Clean or replace filters; clean racks and working tanks

☞

- **3.8 Filter cleaning and replacement**
- **3.10 Rack cleaning and examination**
- **3.11 check and clean working tank**

4. fuse of dryer is broken.

   Shut down machine, remove back side cover of machine and then replace fuse.

   
   Error 504 > **Fig 504.1** for the dryer fuse position

5. Dryer fanis broken.

   Power supply of the dryer fan and main processing motor is parallel connection. When racks are running, dryer fan shall run as well. Otherwise (if no airflow felt in the dryer tank) dryer fan is broken.

   Replace dryer fan.

6. Dryer heater has been broken.

   Shut down machine, and use a multi meter to test the resistance between the **DRTT** wire of AC Control PCB J4 plug and **N6** wire.

   
   Error 310 > **Fig 310.1** and **Fig 310.2** to find the N6 wire

   If the test value is around 220ohm then the dryer heater is OK.
   If the test value is more than 500 ohm then the dryer heater is broken.

   Replace dryer heater.

7. ACControl PCB is broken.

   Replace ACControl PCB.

701 Paper scratch

1. Working solution is dirty.

   Clean or replace filters; clean racks and working tanks

- **3.8 Filter cleaning and replacement**
- **3.10 Rack cleaning and examination**
- **3.11 Check and clean working tank**

2. The edge of the cross over has been damaged.

   Replace the damaged section of the cross over.

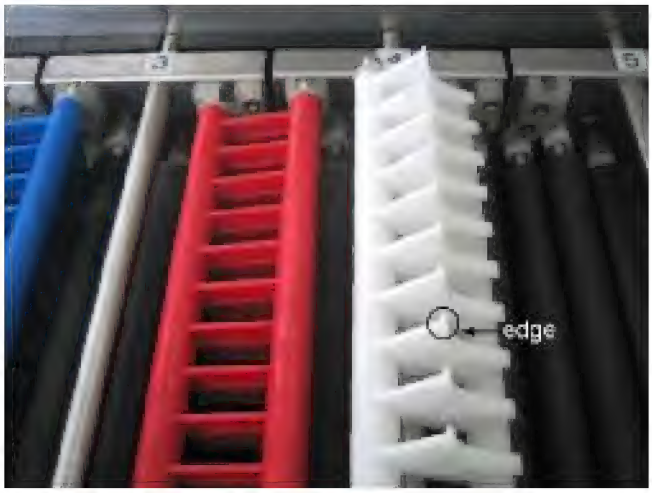


Fig 701

705 Photo comes out dirty

Working solution is dirty.

Clean or replace filters; clean racks and working tanks

- **3.8 Filter cleaning and replacement**
- **3.10 Rack cleaning and examination**
- **3.11 Check and clean working tank**

706 Image out of focus

1. Image of the source file is not sharp.

Try to apply 1 or 2 sharpness to the source file by **Istudio**.

2. Lens is out of focus.

   ➢ Identify the lens.

3.15 Lens selection logic

   ➢ Adjust focus of the lens.

DOLI DIGITAL

DL-2300 Minilab

Part List

Shanghai Doli Photographic Equipment Co., Ltd

712 White borders on photos

1. Redo ABCD calibration for the corresponding format of photos.

2.2 ABCD calibration

2. For 152x102mm or 127x89mm size, if white border still exist after ABCD calibration:
   - Check if paper length is too long.
   - Check double exposure center.

2.3 Double exposure center calibration

Single exposure mode offers a higher center precision than double exposure mode. To switch to single exposure mode for 152x102mm or 127x89mm:

- On Windows PC click **Start**.
- Click **Run** and type **\\10.1.1.1\win-software** and then enter.
- Run **Iregedit**.
- Specify **etc/proc/capabilities/separator**.
- In **Value** change the value to **0** and click **Save now**.
- On Linux LCD panel restart Linux server.

Value of etc/proc/capabilities/separator	Definition
0	Single exposure mode
1	Automatic double exposure mode for 152x102mm or 127x89mm format

3. J18 plug of Platformctrl PCB is loose or platform encoder is broken.

   This problem occurs as big white border when multi printing 152x102mm or 127x89mm formats.

   - Shut down machine.
   - Check J18 plug connection of Platformctrl PCB. If it is good, close platform encoder by setting DIP switch of Platformctrl PCB No.8 to ON.

- Turn on machine; redo ABCD calibration for all formats.

2.2 ABCD calibration

713 Color is very different from the monitor preview

2.11 Color management-from monitor to photos

717 Paper length is longer or shorter than the setting length of the corresponding format

2.8 Paper length calibration

718 Image magnification or scale does not match the monitor preview

2.9 Image magnification calibration

719 Photo overlapping

1. springs of the racks are loose.

Replace springs if it is broken.

3.10 Rack cleaning and examination

2. Rubber sleeve of the racks is distorted.

Replace rubber sleeve.

3.9 Rack sleeve replacement

720 Back print is not clear

1. Back printer ribbon is exhausted.

Replace back printer ribbon cassette.

3.17 Back printer ribbon cassette replacement

2. The distance between back printer head and roller is too close or too far.

Adjust the distance to be about 0.8mm, clean back printer head and roller too during the adjustment.

3.17 Back printer ribbon cassette replacement

3. Back printer voltage is too low.

Increase back printer voltage, for example +0.5V.

4.3 Platformctrl PCB > Adjustment for replacement

721 No back print

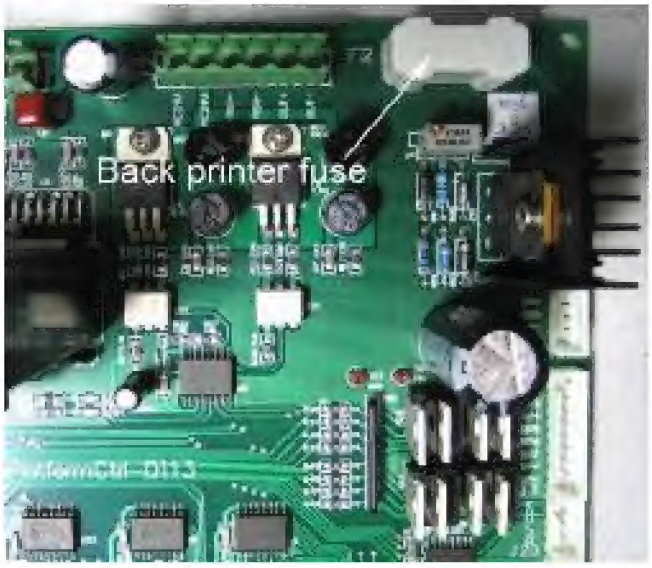
1. Back printer has been set **OFF** in **Maintenance** > **Back printer**.

Select a back print mode in **Maintenance** > **Back printer**.

2. Back printer fuse is bad.

Replace back printer fuse.

Back printer fuse specification: F3.15A



Appendix

DL-202Ps Densitometer

Installation

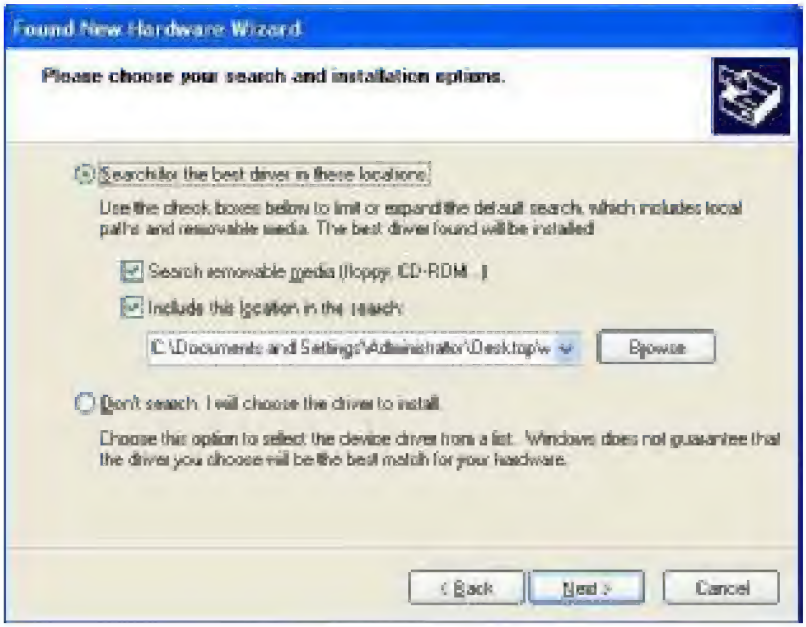
The detail is as follows:

1. Insert the installation CD of DL-202Ps densitometer, click **Densitometer.msi** to begin installation wizard.
2. Follow the installation wizard to complete installation.

3. Connect densitometer to the computer. With a "Beep" sound and the green LED on, the densitometer is detected by the computer (See Figure3-1).

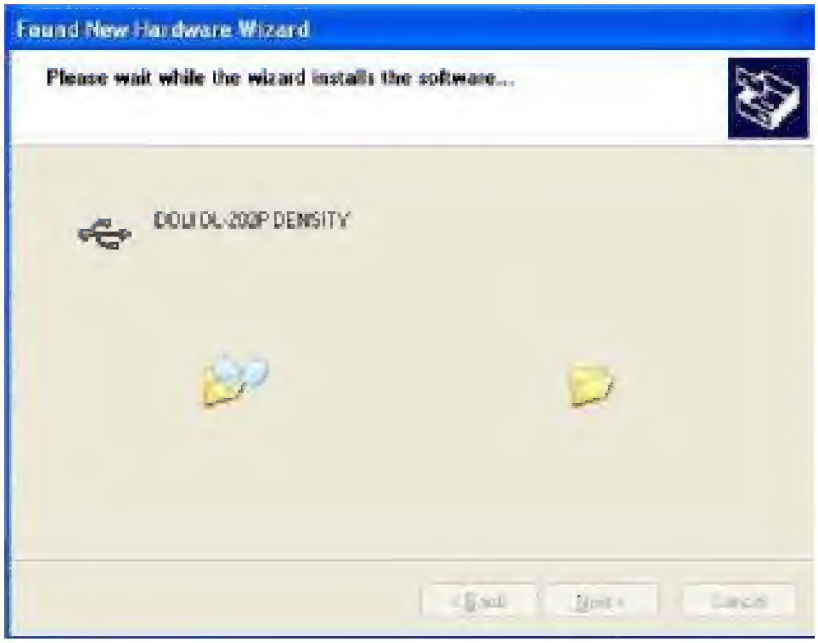
（Figure3-1）

4. Insert the CD into CD-ROM. Click **Install from a list or a specific location (Advanced)** and click **Next** (See Figure 3-2)



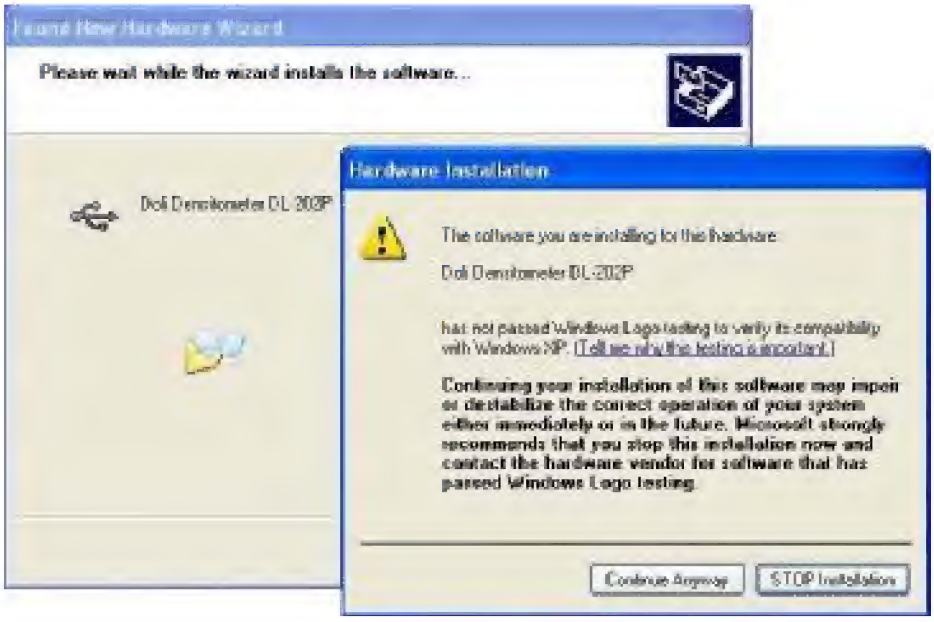
（Figure3-2）

5. Put a tick before **Search removable media (floppy, CD-ROM...)** and click **Next**, the system will search installation drive; Or, put a tick before **Include this location in the search** and click **Browse** to open densitometer drive path and click **Next** to search installation drive (See Figure 3-3)

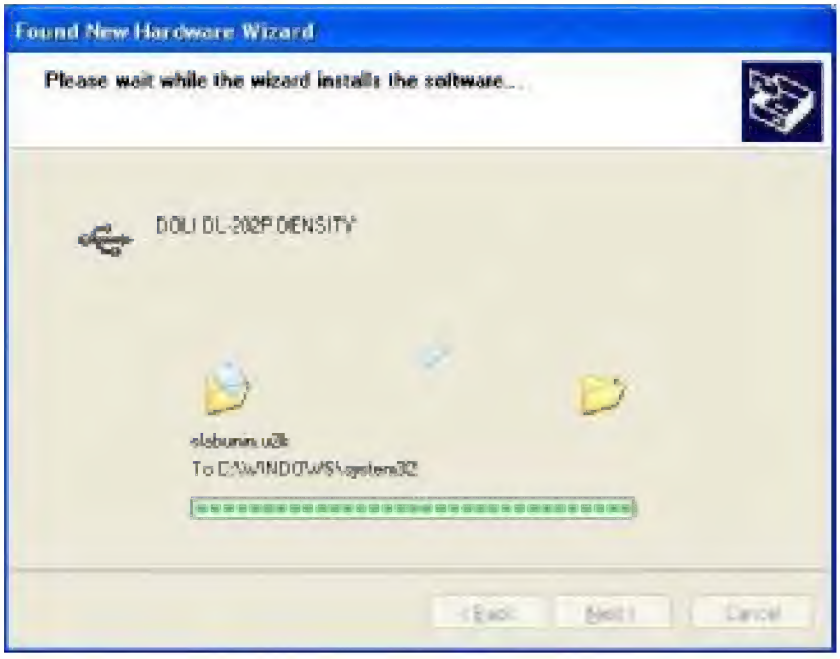


（Figure3-3）

Click **Continue Anyway** (see Figure 3-4 and Figure 3-5)



（Figure3-4）



（Figure3-5）

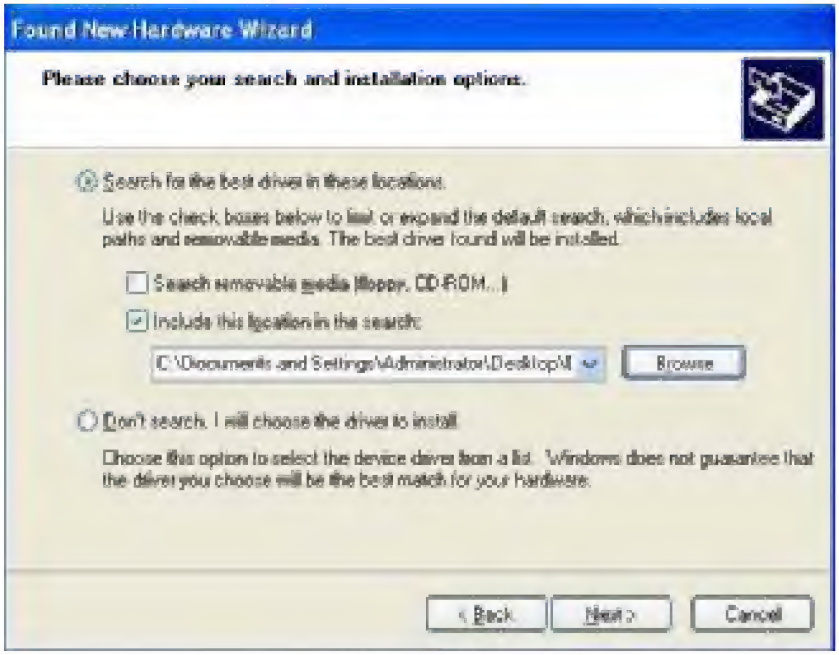
Click **Finish** to finish installation of USB drive (see Figure 3-6)

（Figure3-6）

6. System search again (see Figure 3-7)

（Figure3-7）

7. Click **Install from a list or a specific location (Advanced)** and click **Next** (see Figure 3-8)

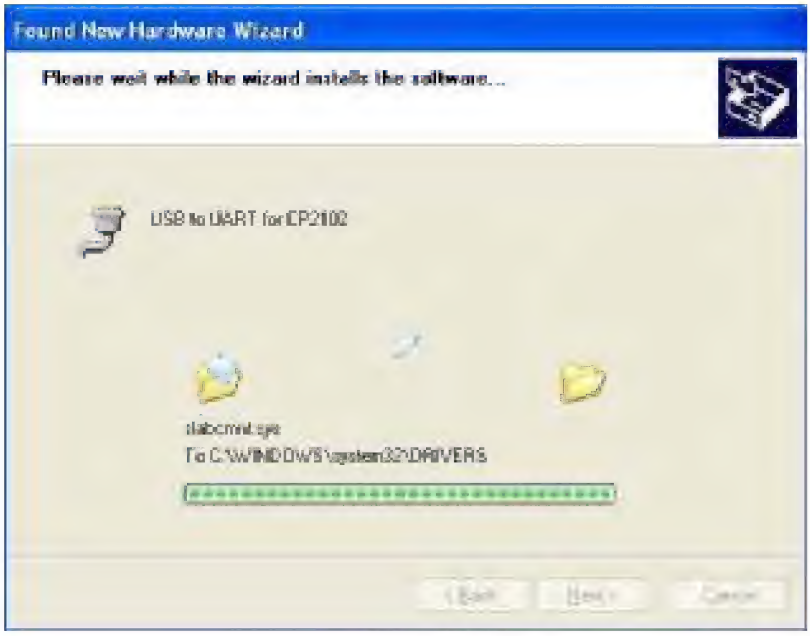


（Figure3-8）

4. Repeat step 5 until serial port drive installation finishes (see Figure3-9, Figure 3-10 and Figure 3-11)

（Figure3-9）

（Figure3-10）



（Figure3-11）

5. Click **Finish** (see Figure 3-12)

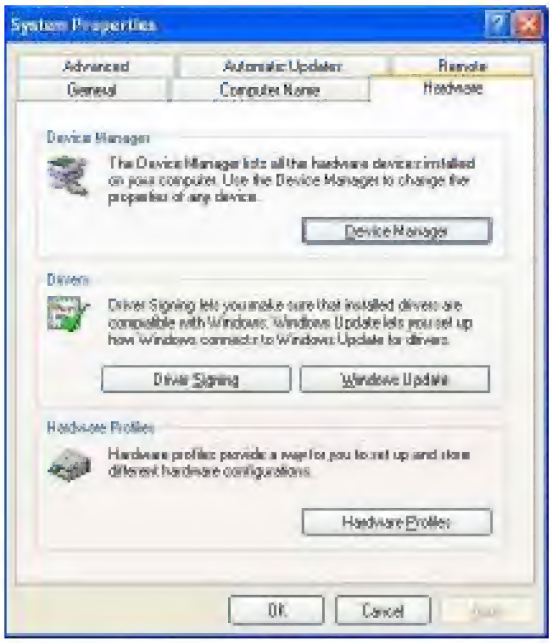
（Figure3-12）

6. After finishing the above steps, densitometer drive installation is finished (see Figure 3-13)

（Figure3-13）

7. Check densitometer serial port in **Device Manager**:

Right click **My Computer** and select **properties** (see Figure 3-14)

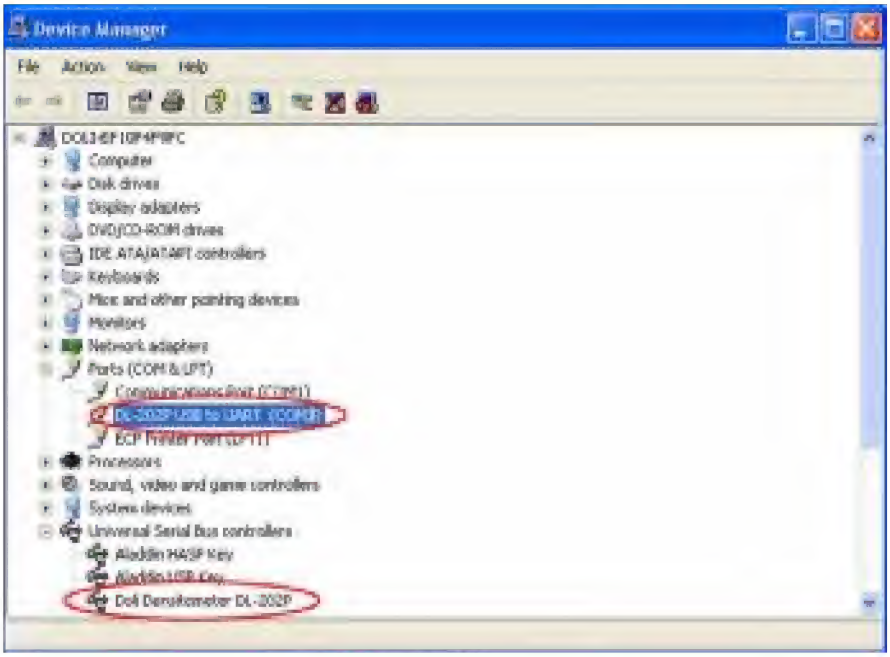


（Figure3-14）

Click **Device Manager** (see Figure 3-15)

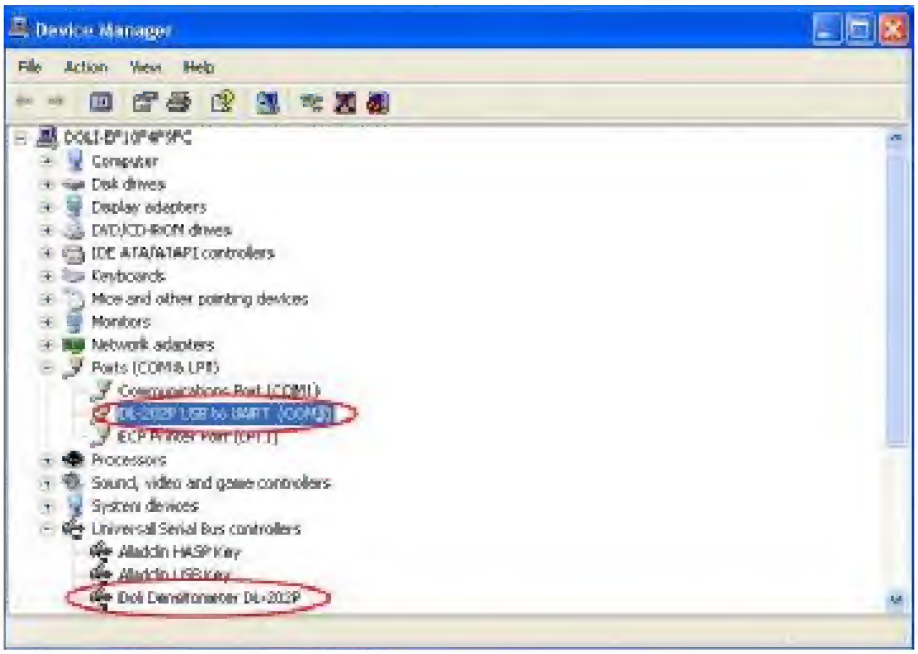
（Figure3-15）

Click **+** before **Ports (COM&LPT)** and **Universal Serial Bus controllers** (see Figure 3-16)

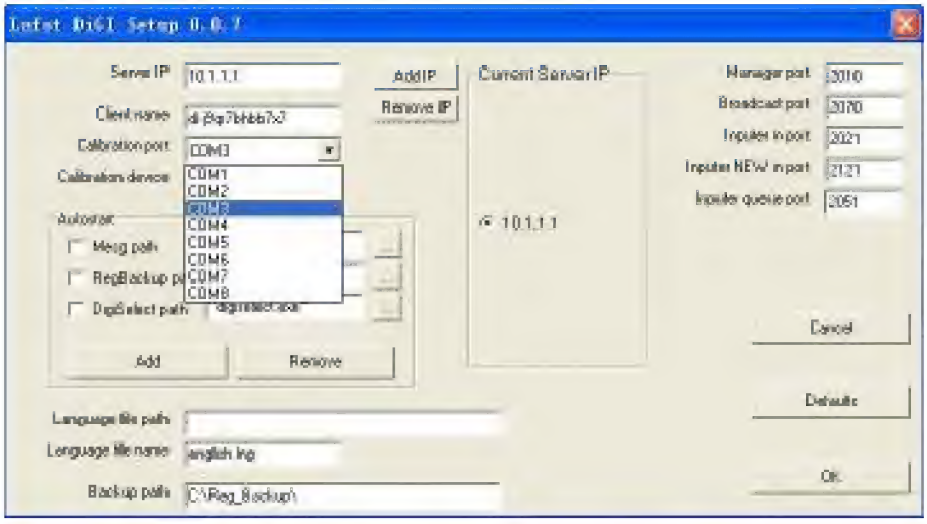


（Figure3-16）

As you can see from the above, serial port and USB drive of densitometer installation is finished. Its serial port is COM3.



4. On the Windows PC, click Start, and then Run, and then key in \\10.1.1.1\winsoftware, and then enter.
5. Run Config.

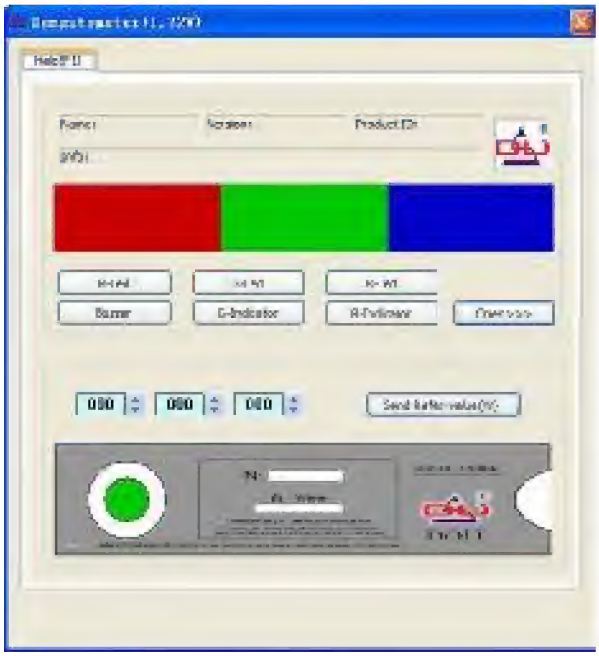


6. In Calibration port box, select the correct COM port number.

7. Click OK to close Config.

Show densitometer test value

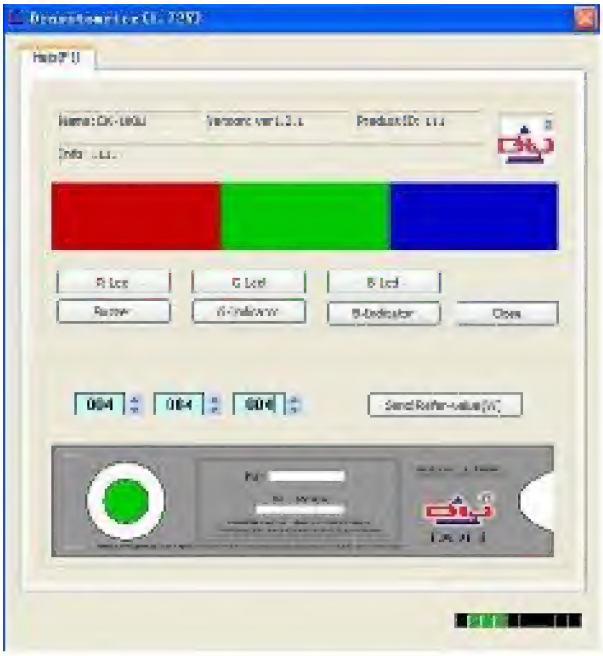
1. Open DL-202Ps User Interface (Usually in Windows PC E:\DoLi\Densimeter or Windows Desktop Start -> Programs-> Doli -> Densitometer).



（Figure3-17）

2. Click **Open>>>** on the right side to open a pull-down menu; Select the corresponding COM, you will hear beep sound and LED turns red (duration: about 0.5 S) from green

and turns green again; A scroll bar pops up (keep scrolling) and corresponding information is displayed in the primary interface; Communication between densitometer and its software is established. (see Figure 3-18)



（Figure3-18）

3. **Primary interface**: After successful communication, you can see the name, version, product ID and corresponding information on the top.
4. The respective value of red, green and blue LED will be displayed in their corresponding areas.
5. The next line is for hardware testing. Click R-Led to turn on red LED, you can check from the bottom hole; the same is true of G-Led and B-LED. Click Buzzer to beep and click any button to stop. Click G-Indicator and B-Indicator to turn on top indicator.

Calibration

The bottom line is for calibration. It is used with a calibration strip when densitometer has deviation

Input the three values into the boxes according to calibration strip in left-right sequence. Click **Send Refer-value (W)** to save (densitometer beeps). Put the aperture on white test point, hold on to densitometer for about 6 seconds, the indicator on densitometer will flash once, and then the values will be shown up at the RGB colour blocks.

（Figure3-19）

（Figure 3-20）Calibration strip

In calibration strip, the **Test point** is used for densitometer calibration; **Calibration value** is the value of R, G and B of the test point. For the sake of getting correct color of photo, please keep these areas clean! Keep calibration strip safe! Make sure no scratch!

When measuring, the hole of the densitometer base should be placed right in the middle of Test point.

Check calibration: After finishing the above step, position the densitometer on the white test point. When the densitometer beeps, check the values. If there is great deviation, it means the densitometer is not correctly calibrated. Repeat the above steps; if there is still great deviation (deviation within 001-002 is acceptable), you can restore factory data; Go to icon , hold on to **Ctrl** key and left key of mouse. A dialogue box will pop up in 5 seconds (see Figure 3-21). Click **OK**.

（Figure 3-21）

Note: When densitometer data are corrupted or the deviation is unacceptable, first restore factory data. If fault still remains, change a new densitometer. We recommend you not to restore factory data frequently.

Open help file

Left click “Help” (Hotkey: F1) to pop up help file which contains detailed operation instruction.

Fig 721.1

3. Back printer ribbon is jammed.

Remove ribbon cassette from back printer, turn the knob on the ribbon cassette until ribbon moves smoothly. Restore ribbon cassette to back printer.

Fig 721.2

3.17 Back printer ribbon cassette replacement

4. Back printer ribbon is exhausted.

Replace back printer ribbon cassette.

3.17 Back printer ribbon cassette replacement

5. Platformctrl PCB is broken.

Replace Platformctrl PCB.

4.3 Platformctrl PCB

多丽影像

DL-2300
彩色数码扩印机
零件手册

本手册详细分解机器各部分组成构造

上海多丽影像设备有限公司
SHANGHAI DOU PHOTOGRAPHIC EQUIPMENT CO.,LTD.

目　录

CONTENTS

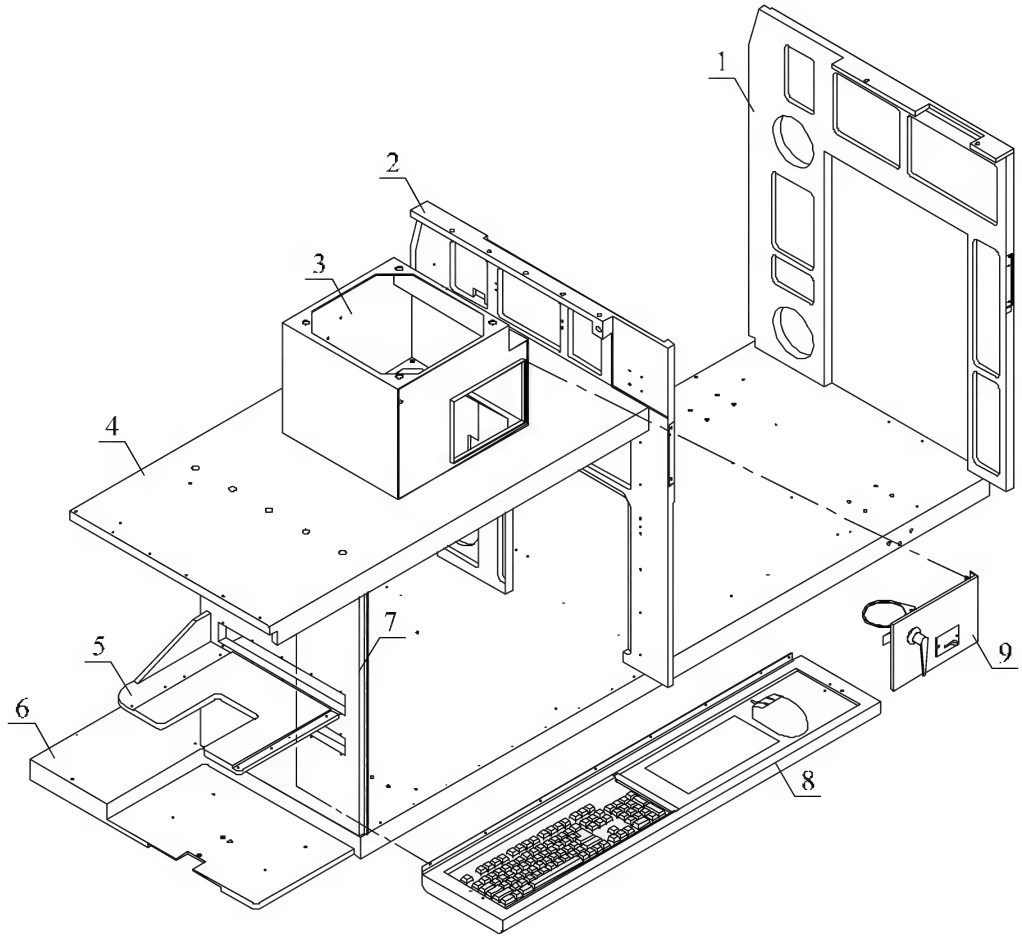
目　　录

CONTENTS

机架1/Machine frame 1

见表1/See List 1

图1
Fig. 1



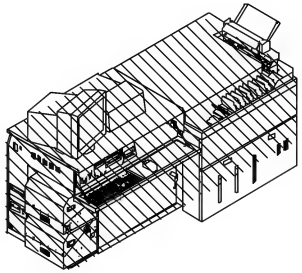


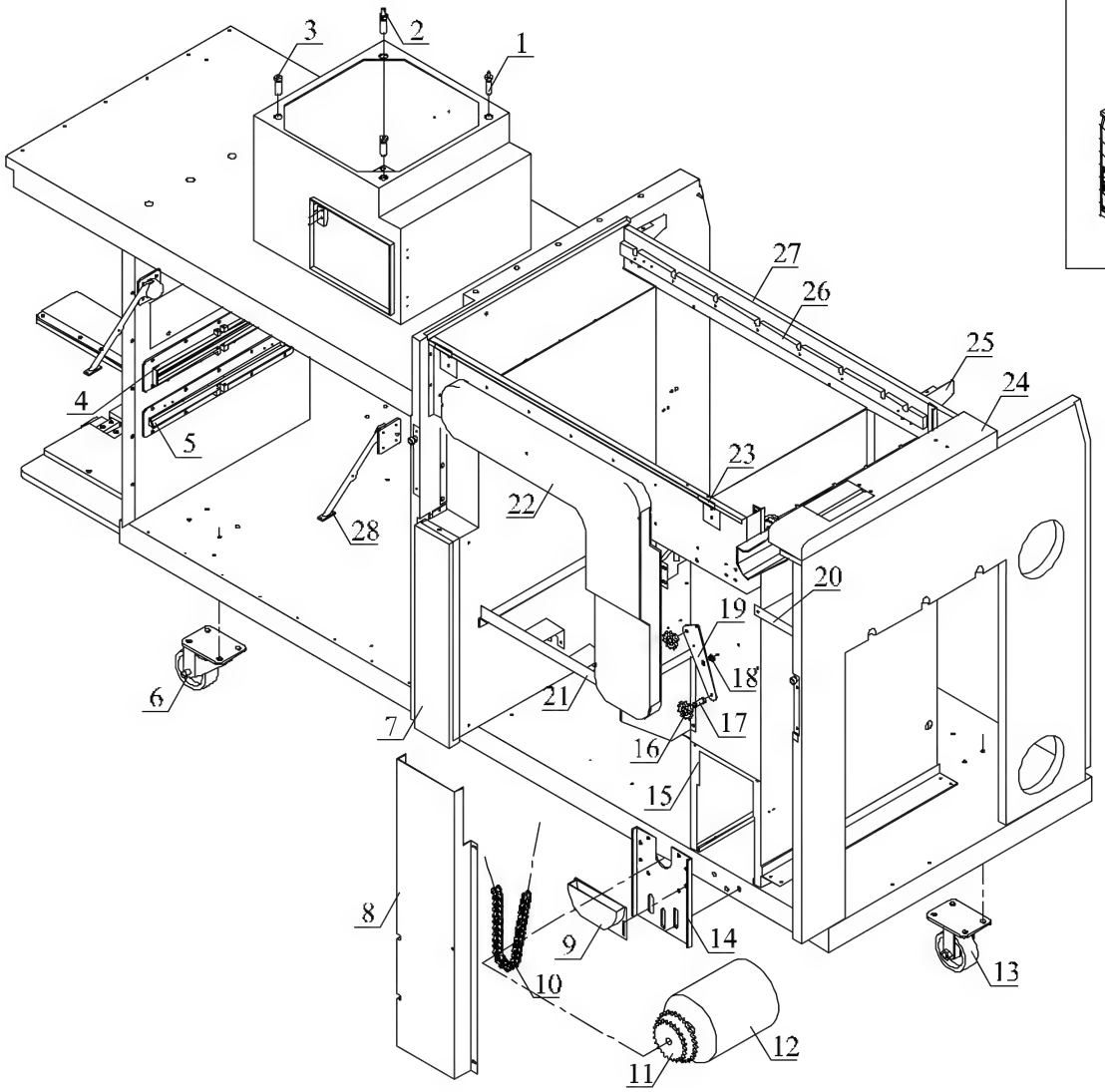
表1/List 1　　见图1/See Fig. 1

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A202105	右墙板	right wall board				
2	D202103	中墙板	middle wall board				
3	D202104A	镜头转盘座	digital part holder				
4	D202102	中间铝板	up wall board				
5	D202112A	上纸箱托板	supporting board of up magazine				
6	A202106	底板	bottom board				
7	D202101A	左墙板	left wall board				
8	D202201	操作台面焊合件	operate desk				
9	D202600	小门组件	assemble of little door				

机架2/Machine frame 2

见表2/See List 2

图2
Fig.2



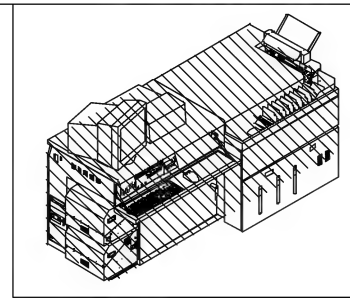
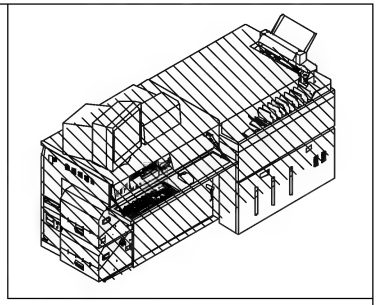


表2/List 2　　见图2/See Fig. 2

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	D202509	螺柱1	bolt 1				
2	D202510	螺柱2	bolt 2				
3	D202511	螺柱3	bolt 3				
4	A202527	上纸箱出纸导向法兰	guide flange of up magazine				
5	A202528	下纸箱出纸导向法兰	guide flange of down magazine				
6	S10031	万向轮	uninversal wheel				
7	A202449	过桥架箱焊件二	lane distribution hood 2				
8	A202432	链条封罩	sealed cover of chain				
9	A202311A	油盒	oil bowl				
10	S03006	滚子链条	chain				
11	A202303	双链轮（30/24）	double sprocket wheel				
12	E06040	主电机1：150	main motor				
13	S10030	定向轮	directional wheel				
14	A202312	电机支架座板	motor holder board				
15	A202443	烘干箱焊合	dryer rack hood				
16	P102309	链轮	sprocket wheel				
17	A202307	张紧轴	strain shaft				
18	A202302	张紧杆座	strain pole holder				
19	A202301	链条张紧板	strain board				
20	A202457	小车安放板	paper sorter fixing board				
21	A202430	水箱搁条焊合图	tank supporting board				
22	A202513	风道	box for convulsions				
23	A202428	中挡板挂钩	hook				
24	A202114	扶手	hand rail				
25	A202429	加热包盖板挂角	hand foot of cover board				
26	A202526	槽架定位板	rack locating bar				
27	A202426	后固定板箱连接条	connecting bar of back fixing plate				
28	S10089	铰链	hinge				

图3
Fig. 3



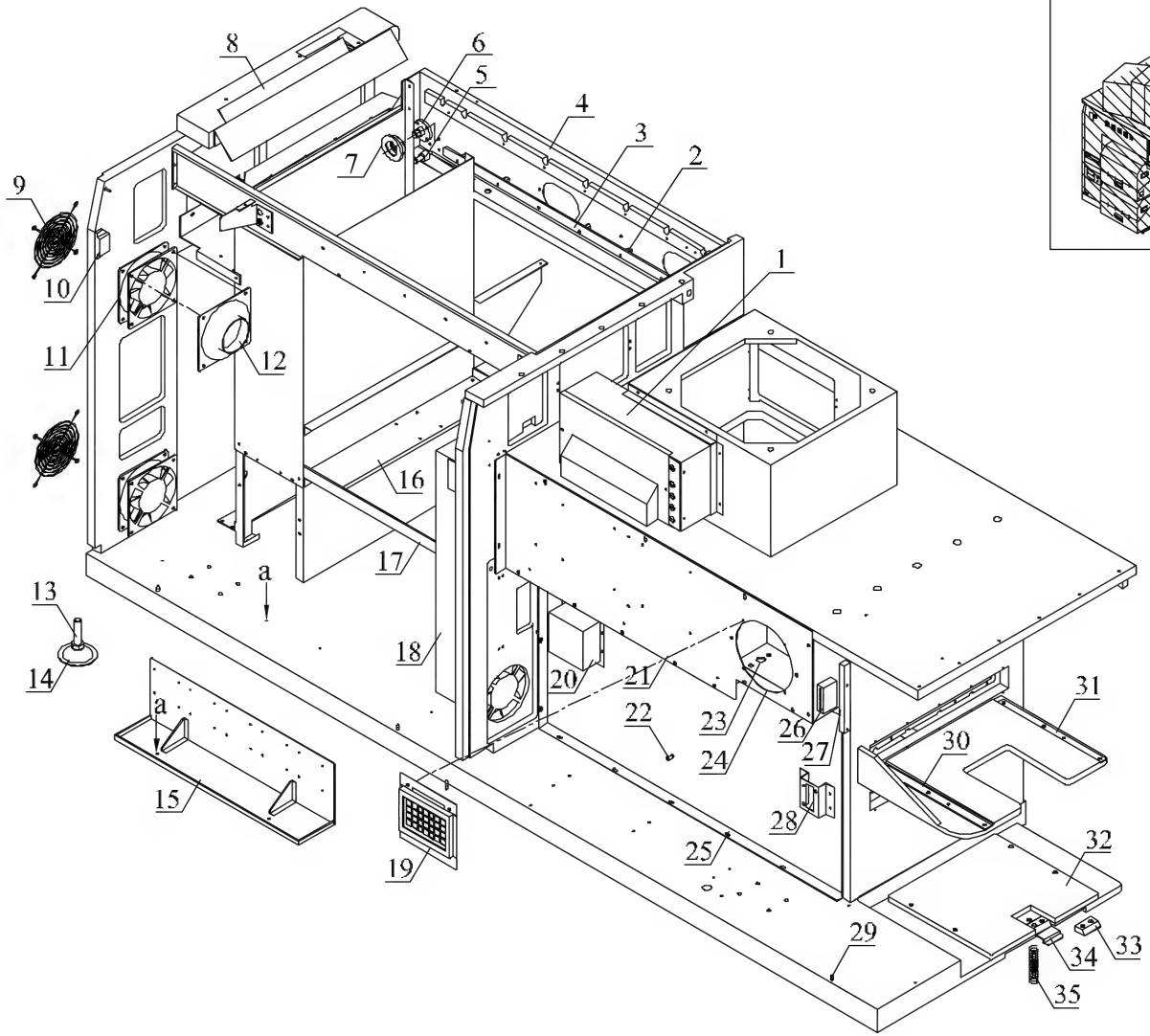

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
a
a

表3/List 3　　见图3/See Fig. 3

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	D202401	变压器箱焊合件	transformer box	29	A202530	定位销	locating pin
2	A202560	定位柱	rocating pole	30	A202407	上纸箱导轨片一	guide track 1 of up magazine
3	A202517	链条搁条	chain supporting bar	31	A202408	上纸箱导轨片二	guide track 2 of up magazine
4	A202427	水箱前挡板焊合图	front block of tank	32	A202540A	纸箱限位板	magazine fixing plate
5	A202305	导向轮轴	cuide wheel shaft	33	A202506	限位块	orientation block
6	A202306	法兰盘	flange plate	34	A202465	限位块安装板	plate
7	A202304	从动链轮盘	driven sprocket plate	35		压簧	spring
8	A202115A	挡板封盖	sealed cover of bleek				
9	S10012	120风扇网罩	net cover				
10	S10028	磁夹	magnet				
11	E06034	120风机(厚40)	fan				
12	A202514	抽风罩	cover				
13	A202545	底脚螺丝	bottom bolt				
14	A202546	底脚座	bottom holder				
15	A202471	循环泵底板	bottom board of circulction pump				
16	A202440	喷淋泵底板	bottom board of spraying pump				
17	A202431	水箱搁条二	tank supporting board 2				
18	A202447A	电线保护罩	wire protecting lover				
19	A202469	增压风机过滤网	filtration net				
20	A202557	电机罩	motor cover				
21	D202404A	电器安装板2	fixing plate 2				
22	A202556	主控板固定螺柱	fixing screw				
23	A202415	风扇罩	fan cover				
24	E06032	150风机	fan				
25	D202403	电器安装板1	fixing plate 1				
26	E08049	集线器	GD-SF1002D				
27	D202508	集线器压板	impaction plate				
28	A202422	插座支架	socket bracket				

机架4 Machine frame 4

见表4/See List 4

图4
Fig. 4

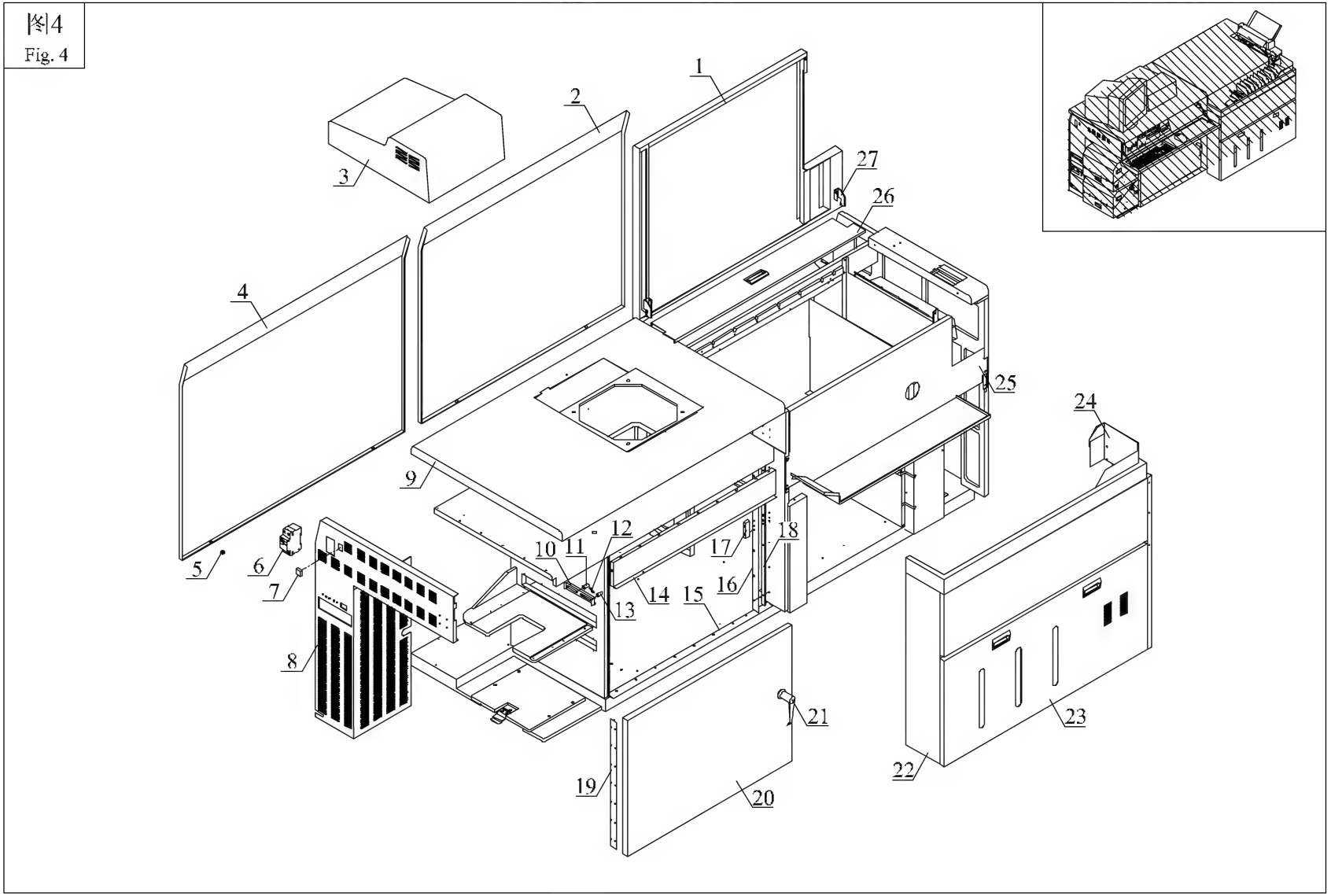


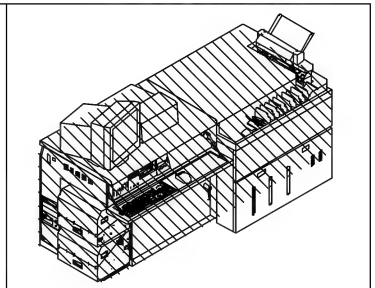
表4/List 4　　见图4/See Fig. 4

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A202116	冲纸箱盖	tank cover				
2	D202114	2300右前罩	frant right cover (2300)				
3	D202111	头罩	cover				
4	D202113	2300左前罩	frant left cover (2300)				
5	A202550	护套	rubber ring				
6	E10081	空气开关	switch				
7	E10007	启动开关	switch				
8	D202107A	电器罩焊合件	cover of electric				
9	D202105	左台面	up left plate				
10	D202413	上纸箱限位板	block bar of up magazine				
11	D202512	上纸箱限位板固定柱1	pin 1				
12		拉簧	spring				
13	D202513	上纸箱限位板固定柱2	pin 2				
14	D202110	上密封板	up sealed piece				
15	A202404-2	下密封条	down sealed piece				
16	D202405	右密封条	right sealed piece				
17	A202543	扩印台门垫块	spacer of printing plat form door				
18	D202501	右密封条连接件	joint of right sealed piece				
19	D202503	扩印台门铰链	gemel of door				
20	D202109	扩印台门	printing platform door				
21	T10017	扩印门锁	lock of printing platform door				
22	A202118	分户器罩	upper cover of sorter				
23	A202119	分户器下罩	lower cover of sorter				
24	A202120	上挡边	upper block edge				
25	A202446	分户器搁板碰焊图	sorter shelves				
26	D202414	加热包盖板	cover board of heating tank				
27	A202116-05	箱盖连接座	joint holder of tank cover				

机架5/Machine frame 5

见表5/See List 5

图5
Fig.5



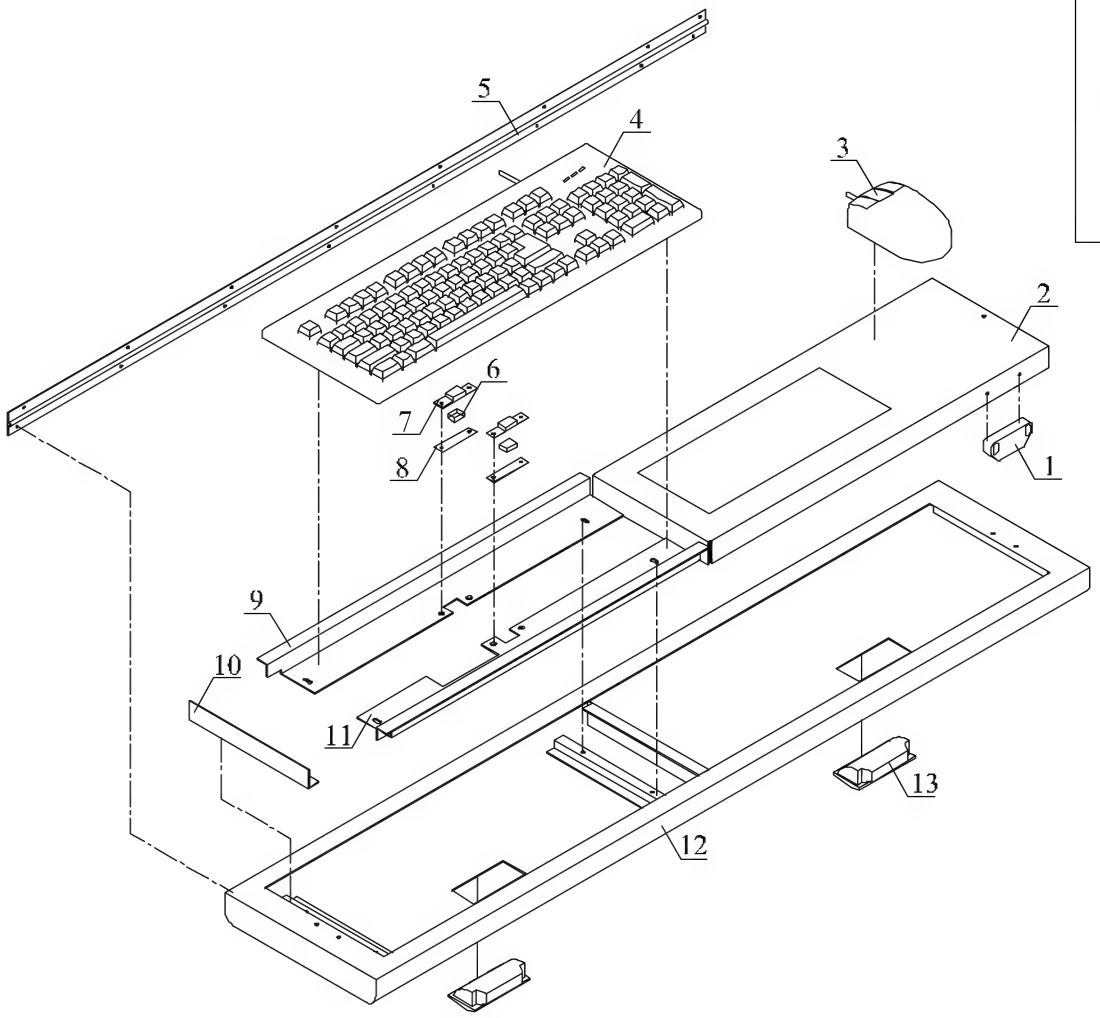
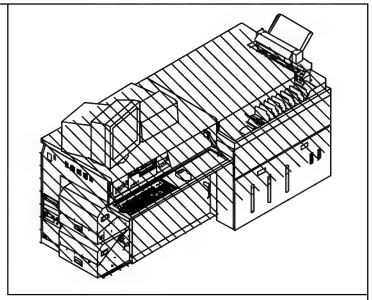


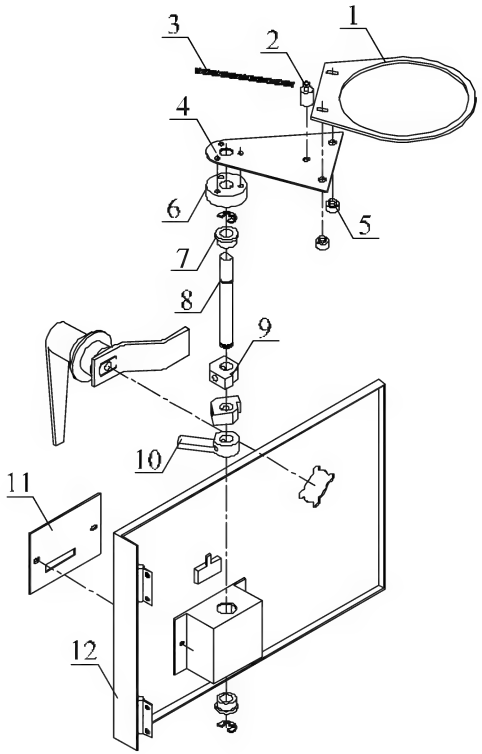
表5/List 5　　见图5/See Fig. 5

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	S10028	磁铁	magnet				
2	D202207	鼠标支撑板	mouse supporting plate				
3		鼠标	mouse				
4		键盘	keyboard				
5	D202504	操作台铰链	gemel				
6	S10066	磁铁	magnet				
7	D202205	磁铁压板	magnet fixing plate				
8	D202206	磁铁盖板	magnet cover				
9	D202203	键盘前挡板	front plate keyboard				
10	D202202	键盘左挡板	left plate keyboard				
11	D202204	键盘后挡板	rear plate keyboard				
12	D202201	操作台面焊合件	operate desk				
13	A202554	拉手	handle				

图6
Fig.6



柔光机构
soften lens



变压器箱
transformer

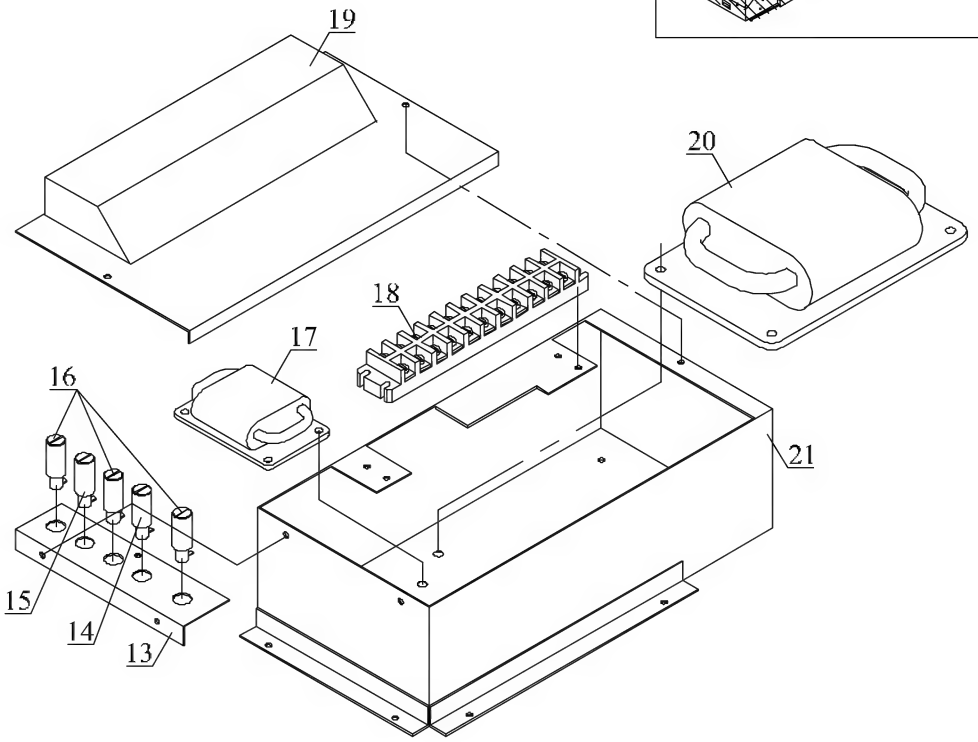


表6/List 6　　见图6/See Fig. 6

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	D202603	柔光片座	filter holder				
2	D202609	弹簧固定座	spring holder				
3	S04059	拉簧	spring				
4	D202604	柔光片安装板	filter fixing plate				
5	A203622	铆接螺柱	screw				
6	D202605	柔光片座法兰	flange plate				
7	D202607	轴套	bushing				
8	D202606	柔光片转轴	rotating shaft				
9	D202610	下限位	down fixing bar				
10	D202608	手柄	handle				
11	D202602	小门盖板	small door cover				
12	D202601	小门焊合件	small door				
13	D202401-04	保险丝支架	fuse bracket				
14	E10015	保险丝	fuse				
15	E10012	保险丝	fuse				
16	E10018	保险丝	fuse				
17	E10038	小变压器	small transformer				
18	E09101	接线端子排(16芯)	wire connector (16 pin)				
19	D202402	变压器箱盖	transformer case cover				
20	E10114	大变压器	great transformer				
21	D202401	变压器箱	transformer case				

图7
Fig.7

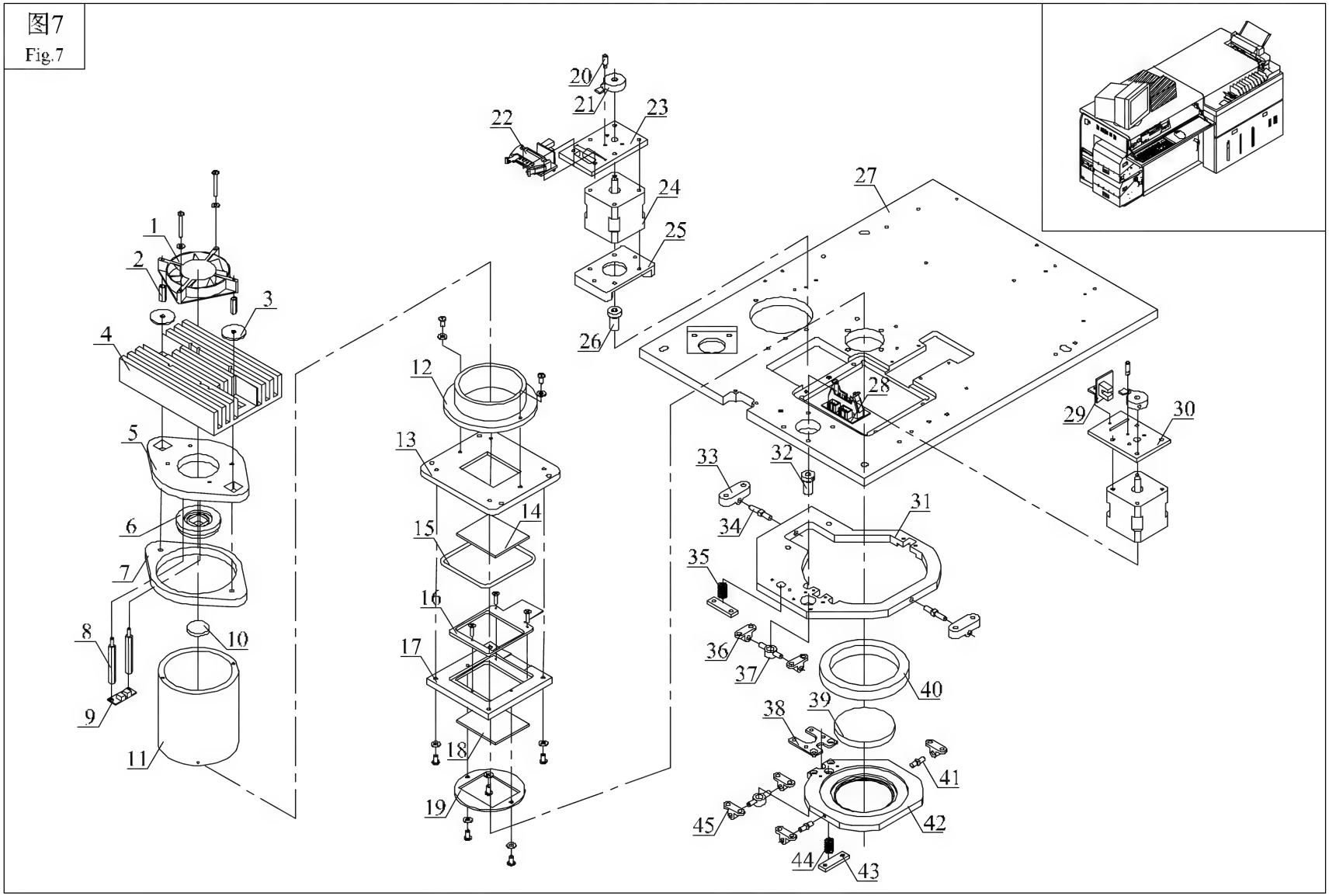
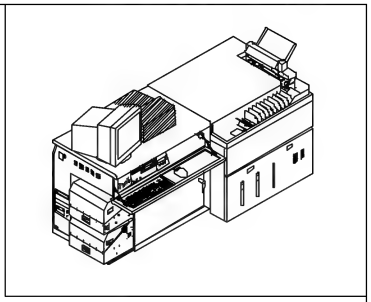

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45

表7/List 7　　见图7/See Fig.7

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	E06077	风扇	fan	29	SCUT-D101	偏振步进电机T1传感器 PCB	T1 sensor pcb
2	D204108A	风扇固定柱	fixing pole for fan	30	D204423	光电管安装板2	senor assembling plate 2
3	D204112	垫片	washer	31	D204410	外支架	outerbracket
4	D204105B	散热片	heat sink	32	D204408	双头短螺柱	short double-screw bolt
5	D204103B	圆筒盖	cover of mirror box	33	D204418	外支架转轴座	rotor holder
6	D204109A	混光片座	confuse of mirror holder	34	D204405	外支架转轴	rotor of outer bracket
7	D204110	圆筒盖座	cover of mirror box holder	35	S04056	短压簧	short press spring
8	D204107	兰硅板安装柱	fixing pole for photo cell	36	D204419	圆螺母支座	round nut holder
9	Laigui-D101	兰硅PCB	photo cell pcb	37	D204417	圆螺母	round nut
10	D204113	13U柔光片	mirror glass	38	D204424	内支架连接板	connect plact of inner bracket
11	D204101-1	圆筒	mirror box	39	G10044	等效镜片	equivalent eyeglass
12	G10029	聚光镜	condensor	40	D204421	防尘圈	dust-proof ring
13	D204202	上偏振滤色片座	up polarizer holder	41	D204406	内支架转轴	rotor of inner bracket
14		上偏振滤色片	up polarizer	42	D204412	内支架	Inner bracket
15	S01330	O型密封环	“O”sealed ring	43	P108030	轴压板	press plate
16	E10216	LCD	LCD	44	S04055	长压簧	long press spring
17	D204205	LCD座(13U用)	LCD holder	45	D204425	沉孔圆螺母支座	deep aperture round nut holder
18		下偏振滤色片	down polarizer				
19	D204203	下偏振滤色片座	down polarizer holder				
20	D204402	限位柱	location pole				
21	D204414A	光检圈	sensor ring				
22	SSMB-D101	偏振步进电机T2传感器 PCB	T2 sensor pcb				
23	D204422	光电管安装板1	senor assembling plate 1				
24	E06086	步进电机	step motor				
25	D204413	电机安装板	motor assembling plate				
26	D204409	双头长螺柱	long double-screw bolt				
27	D204501A	数码安装底板	bottom plate				
28	SSMBA-D101	偏振步进电机T2传感器 PCB	T2 sensor pcb				

图8
Fig8



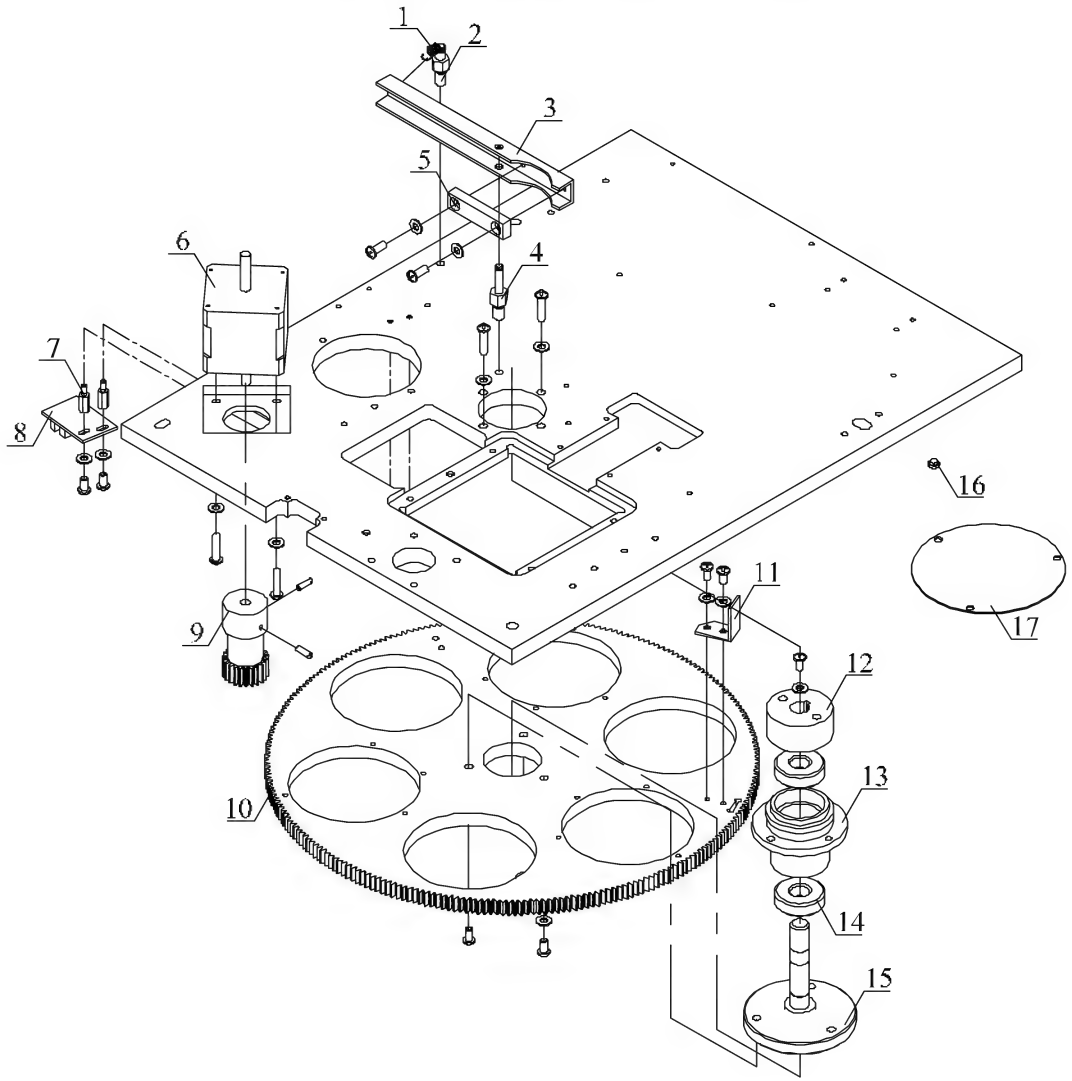


表8/List 8　　见图8/See Fig.8

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	S04057	拉簧	extension spring				
2	D204509	阻尼杆拉簧座	holder of damp pole				
3	D204511	阻尼杆	damp pole				
4	D204510	阻尼杆转轴	damp rotor				
5	D204512	转盘阻尼片	damp of turntable				
6	E06085	步进电机	step motot				
7	D204307	线路板安装柱1	assembling pole 1				
8	E03014	光电管	sensor				
9	D204503	主动齿轮轴	driving gear shaft				
10	D204502	镜头转盘	lens turnplate				
11	D204513	镜头转盘光检片	sensor segment of turntable				
12	D204507A	转盘阻尼毂	turntable damp				
13	D204505A	转盘法兰	flange				
14	S02024	轴承	bearing				
15	D204504A	转盘主轴	main shaft of turntable				
16	D204514	底板铆轴	motherboard riveting shaft				
17	D204515	转盘挡光板	light barrier				

图9
Fig. 9

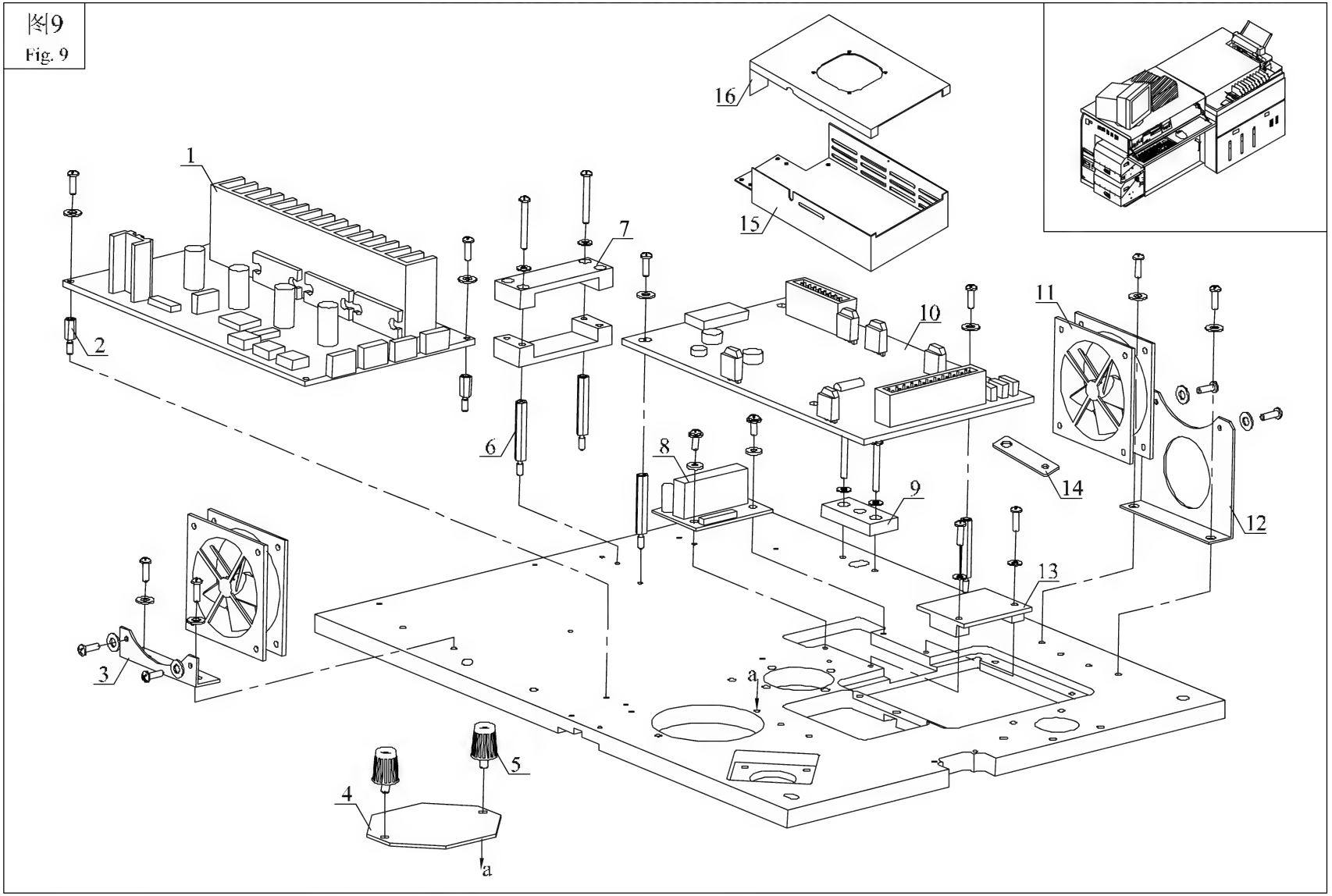


表9/List 9　　见图9/See Fig.9

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	Master-D103	步进电机驱动板	step motot plate				
2	D204307	线路板安装柱1	assembling pole 1				
3	D204310	左风扇支架	left fan bracket				
4	D204302	盖板	cover plate				
5	P102510	手柄螺丝	hand-hold screw				
6	D204308	线路板安装柱2	assembling pole 2				
7	D204306	插座支撑	connectot support				
8	14YCONNECT-I101	14Y/13U转接板	13U translation board				
9	D204301A	底板固定块	fixing plate				
10	14YLCDDRIVER-I101	LCD曝光驱动板	LCD drive board				
11	E06073	风扇	fan				
12	D204309A	右风扇支架	right fan bracket				
13	D204303	LCD护罩	LCD shield				
14	D204311	线路板安装板	fixing board				
15	D204312	驱动板屏蔽盒	box				
16	D204313	驱动板屏蔽盒盖	cover				

图10
Fig. 10

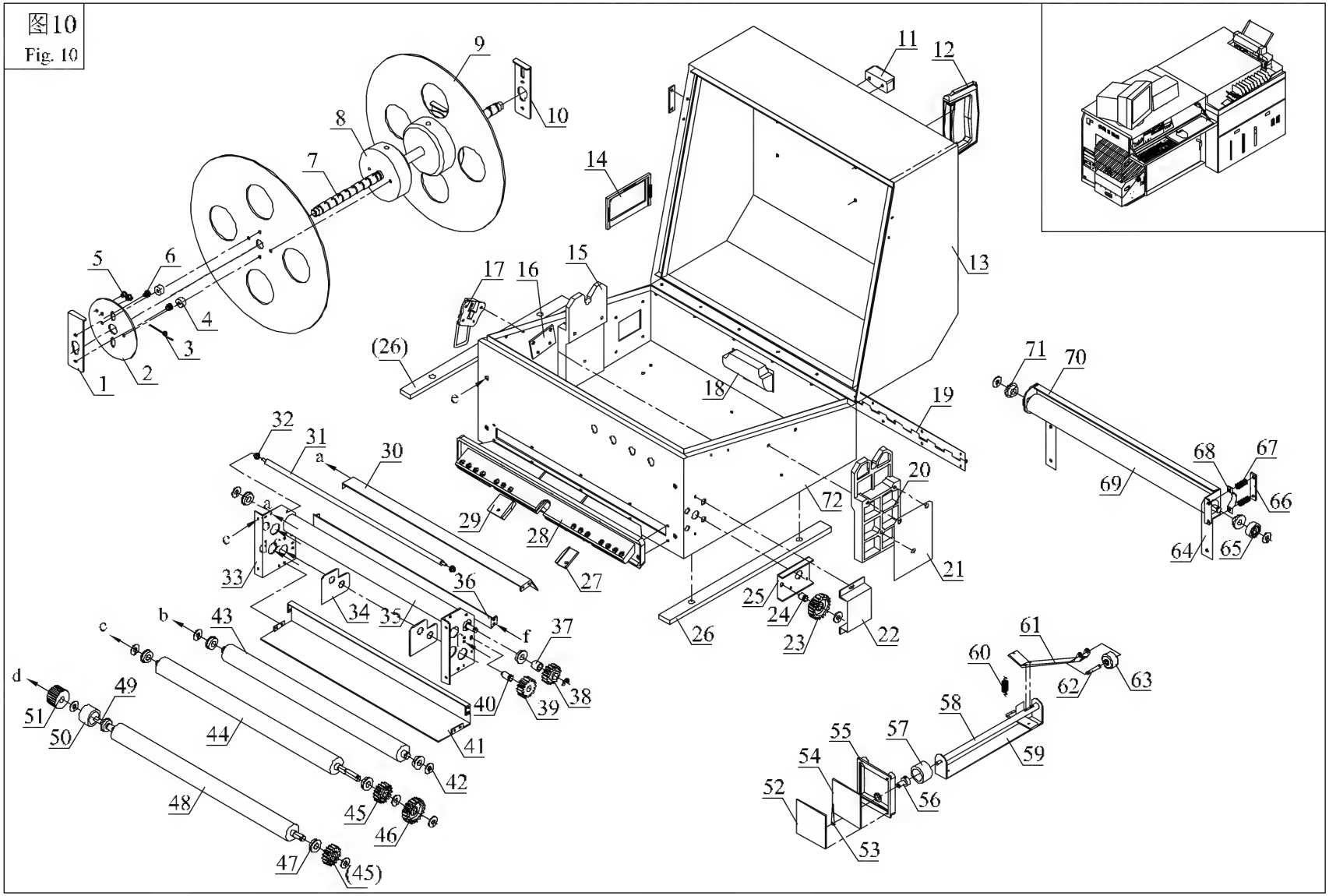

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
(26)
(45)
a
b
c
d
e
f

表10/List10　　见图10/See Fig. 10

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A201109	活动卡板	movable clip plate	29	A201310	上纸箱导纸块	paper guide piece
2	A201108A	定位盘	fixing plate	30	A201202	上盖板	up cover
3	S04034	扭簧	distorting spring	31	A201207	光轴	shaft
4	A201105	定位销	locating pin	32	A201326	光轴套	shaft sleeve
5	A201104	弹簧定位铆钉	spring locating rivet	33	A201201	辊轴侧板	side plate of roller shaft
6	A201106	定位铆钉	locating rivet	34	D201307	上纸箱辊轴挡板	roller shaft baffle
7	A201103	放纸轴	shaft for paper release	35	A201205A	差动轴	shaft
8	A201102	卷纸圆盘	round plate	36	A201203	中间导向板	middle guide plate
9	A201101	挡板	plate	37	S02011	差动滚针轴承	bbearing
10	A201110	定活动卡板	fixing clip plate	38	A201206	差动齿轮	differential gear
11	A201306	锁舌	lock tongue	39	A201211	过桥齿轮	crossover gear
12	S10002	录音机把手	recorder handle	40	A201212	过桥齿轮轴	crossover gear shaft
13	A201301	上纸箱上箱体	up case of up cassette	41	A201204	下盖板	down cover
14	A201303	纸箱标贴座	holder	42	A208144-01	φ6卡片	φ6 ring
15	U201310	相纸轴座(左)	paper shaft holder(left)	43	A201208A	被动轴	passive shaft
16	A201309	搭扣固定垫块二	fixing cushion 2	44	D201201A	被动轴	passive shaft
17	A201325	暗箱搭扣装配	magazine buckle	45	A209213	齿轮	gear
18	A202554	拉手	handle	46	D201305A	21牙齿轮	21 teeth gear
19	A201305	纸箱铰链	cassette chain	47	S02010	轴承	bbearing
20	U201311	相纸轴座（右）	paper shaft holder(right)	48	D201202A	主动轴	initiative shaft
21	A201324	相纸轴座垫片	cushion of paper shaft holder	49	D201203	纸箱旋钮轴	knob shaft
22	D201303	上纸箱齿轮盖	up cassette gear cover	50	S10064	海绵隔套	sponge insulated sleeve
23	D201306A	21牙借动齿轮	21 teeth gear	51	S10003	暗箱旋钮	knob
24	D201304	纸箱齿轮轴	cassette gear shaft	52	A201315	观察窗	watch window
25	D201302A	上纸箱齿轮架	up cassette gear bracket	53	A201316	指针	finger
26	A201313	纸箱搁条	paper magazine support	54	T03104	上纸箱刻度标贴	scale mark of down cassette
27	A201311	上纸箱导纸块	paper guide piece	55	A201317	观察框	watch frame
28	A201312	出纸导向	paper out guide	56	A201318	接长轴	lengthening shaft

表11/List 11　　见图10/See Fig. 10

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
57	S10065	海绵隔套	sponge insulated sleeve				
58	A201319	数量指示轴	quantity indicating shaft				
59	A201321	数量指示轴支架合件	quantity indicating shaft bracket				
60	S04064	拉簧	extension spring				
61	A201320	无纸摆杆	swing pole				
62	A201323	滚轮轴	idler wheel shaft				
63	A201322	滚轮	idler wheel				
64	A201403	暗箱阻尼支架钢片	damp steel piece of dark box				
65	A201405	压紧轮	pressing wheel				
66	A201404	暗箱阻尼压板	press plate of dark box				
67	S04049	弹簧	spring				
68	A201407	暗箱阻尼压板02	press plate of dark box 02				
69	A201401	暗箱阻尼辊	damp roller of dark box				
70	A201402	暗箱阻尼支架	damp bracket				
71	A201406	四氟套	bearing				
72	D201301B	上纸箱下箱体	down case of up cassette				

图11
Fig.11

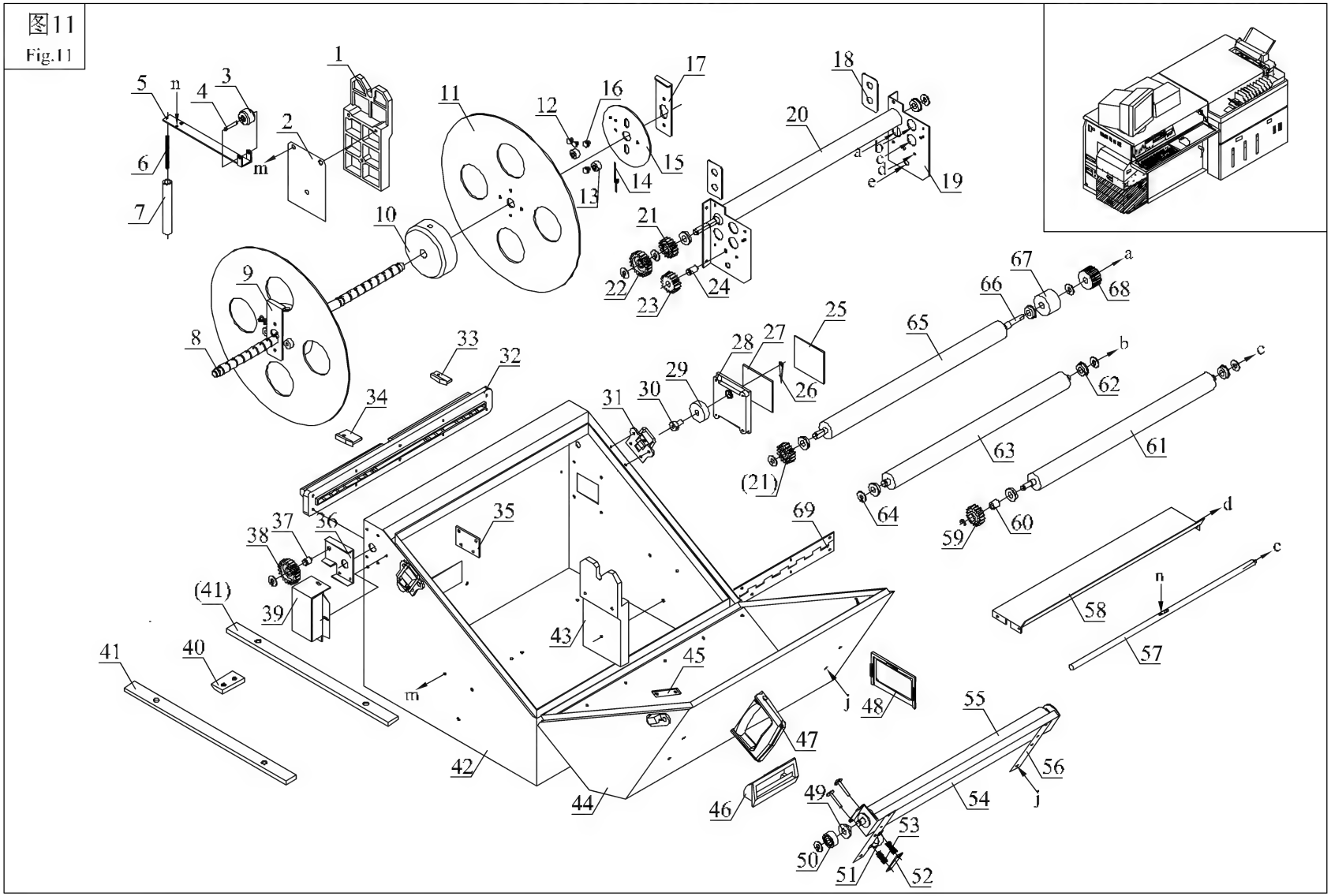

1
2
3
4
5
n
6
m
7
8
9
10
11
12
13
14
15
16
17
18
19
20
a
b
d
e
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
(41)
40
41
42
43
44
45
46
47
48
j
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
c
(21)

表12/List12　　见图11/See Fig. 11

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	U201311	相纸轴座（右）	paper shaft holder(right)	29	S10064	海绵隔套	sponge insulated sleeve
2	A201324	相纸轴座垫片	cushion of paper shaft holder	30	A201318	接长轴	lengthening shaft
3	A201322	滚轮	idler wheel	31	A201325	暗箱搭扣装配	magazine buckle
4	A201323	滚轮轴	idler wheel shaft	32	A216306	出纸导向	paper out guide
5	A216308	无纸摆杆	swing pole	33	A216305	下纸箱导纸块	paper guide piece
6	S04004	拉簧0.5x5x54	extension spring 0.5x5x54	34	A216304	下纸箱导纸块	paper guide piece
7	A216309	限位套	restrictive sleeve	35	A201309	搭扣固定垫块二	fixing cushion 2
8	A201103	放纸轴	shaft for paper release	36	D216302	下纸箱齿轮架	down cassette gear bracket
9	A201110	定活动卡板	fixing clip plate	37	D201304	纸箱齿轮轴	cassette gear shaft
10	A201102	卷纸圆盘	round plate	38	D201306	21牙借动齿轮	21 teeth gear
11	A201101	挡板	plate	39	D216303	下纸箱齿轮盖	down cassette gear cover
12	A201104	弹簧定位铆钉	spring locating rivet	40	A216310	下纸箱限位块	restrictive piece
13	A201105	定位销	locating pin	41	A201313	纸箱搁条	paper magazine support
14	S04034	扭簧	distorting spring	42	D216301B	下纸箱下箱体	down case of down cassette
15	A201108A	定圆盘	fixing plate	43	U201310	相纸轴座(左)	paper shaft holder(left)
16	A201106	定位铆钉	locating rivet	44	A216301	下纸箱上箱体	up case of down cassette
17	A201109	活动卡板	movable clip plate	45	A216303	搭扣固定垫块一	fixing cushion 1
18	D216304	下纸箱辊轴挡板	roller shaft baffle	46	A202554	拉手	handle
19	A216201A	辊轴侧板	side plate of roller shaft	47	S10002	录音机把手	recorder handle
20	D201201A	被动轴	passive shaft	48	A201303	纸箱标贴座	holder
21	A209213	齿轮	gear	49	A201406	四氟套	bearing
22	D201305	21牙齿轮	21 teeth gear	50	A201405	压紧轮	pressing wheel
23	A201211	过桥齿轮	crossover gear	51	A201407	暗箱阻尼压板02	press plate of dark box 02
24	A201212	过桥齿轮轴	crossover gear shaft	52	A201404	暗箱阻尼压板	press plate of dark box
25	A201315	观察窗	watch window	53	S04049	弹簧0.6X6X15	spring(0.6X6X15)
26	A201316	指针	finger	54	A201402	暗箱阻尼支架	damp bracket
27	T03144	下纸箱刻度标贴	scale mark of down cassette	55	A201401	暗箱阻尼辊	damp roller of dark box
28	A201317	观察框	watch frame	56	A201403	暗箱阻尼支架钢片	damp steel piece of dark box

表13/List 13　　见图11/See Fig. 11

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
57	A216307	数量指示轴	quantity indicating shaft				
58	A216202	下挡板	down baffle				
59	A201206	差动齿轮	differential gear				
60	S02011	差动滚针轴承	bbearing				
61	A201205A	差动轴	shaft				
62	S02010	轴承	bearing				
63	A201208A	被动轴	passive shaft				
64	A208144-01	φ6卡片	φ6 ring				
65	D201202A	主动轴	initiative shaft				
66	D201203	纸箱旋钮轴	knob shaft				
67	S10065	海绵隔套	sponge insulated sleeve				
68	S10003	暗箱旋钮	knob				
69	A201305	纸箱铰链	cassette chain				

图12
Fig. 12

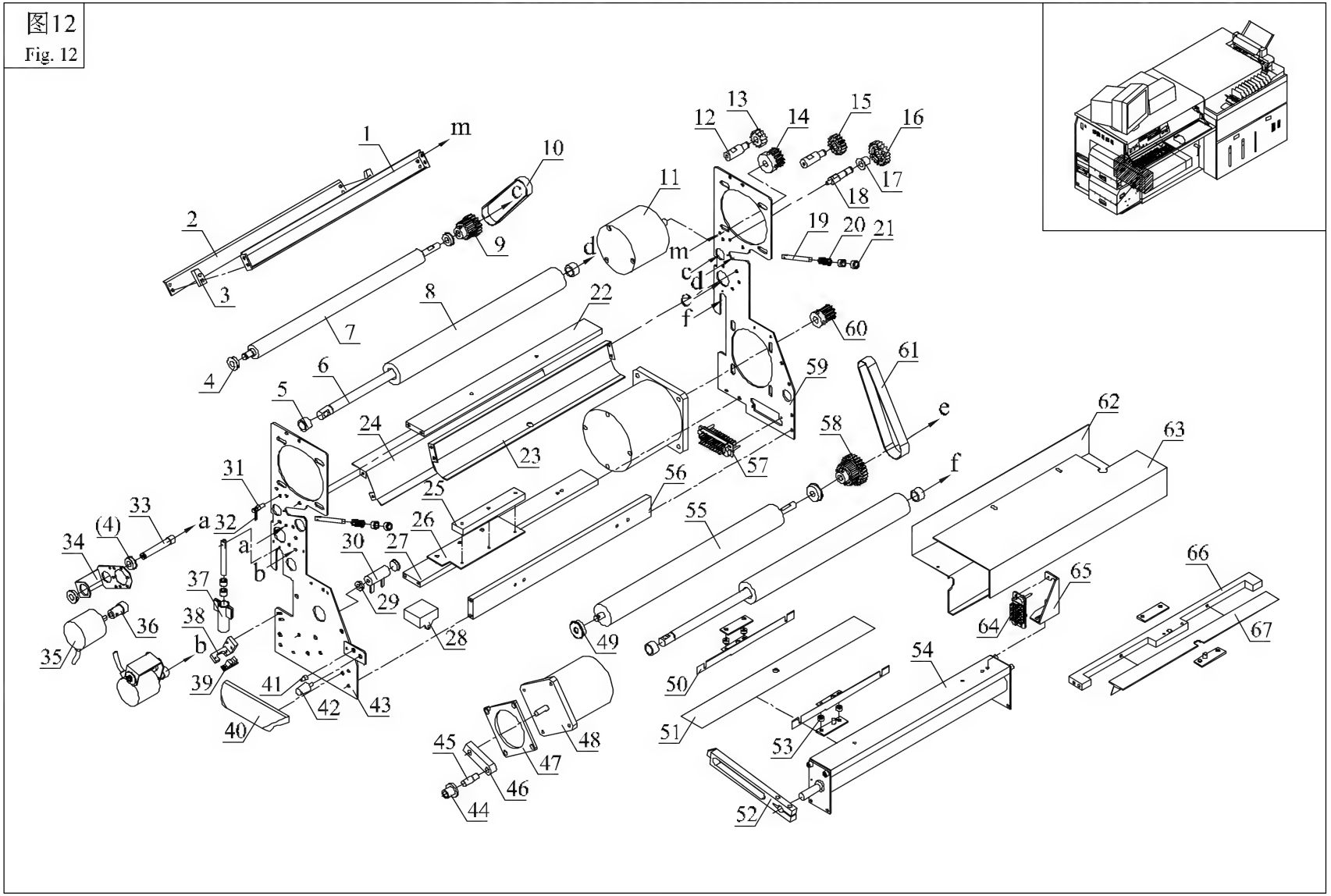

1
m
10
c
2
9
3
11
12
13
14
15
16
17
18
19
20
21
d
m
c
d
e
f
8
22
7
4
6
5
60
61
59
24
23
58
57
62
63
e
f
31
25
56
55
33
(4)
a
32
26
30
27
34
a
b
37
29
38
36
28
49
35
b
39
41
42
43
40
50
54
64
65
66
67
51
53
45
48
47
46
44
52

表14/List 14　　见图12/See Fig. 12

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A206104	上导板	up guide	29	S10093	电阻定位套	resistance fixing sheath
2	A206105	上纸箱进纸下导板	down guide	30		电阻	resistance
3	A206103	导向间隔	guide space	31	D206119	编码器弹簧拉座	spring holder
4	S02010	轴承F688	bearing F688	32	S04071	编码器拉簧短	extension spring
5	S02016	轴承	bearing	33	D206114	编码器转轴	rotating shaft of encoder
6	A206108	压紧辊轴	compacting roller shaft	34	D206104A	编码器支架	encoder bracket
7	D206115	上主动辊	up drving roller	35	E10138	编码器	encoder
8	A206107	压紧辊	compacting roller	36	D206106	编码器轴2	encoder shaft 2
9	D206111	16牙双联轮	16 teeth dual gear	37	A206225	压紧紧螺母罩	compacting unt cover
10	S03050	同步带	synchronous belt	38	A206129	光电管支架	sensor bracket
11	E06060	永磁电机	motor	39	GK112-D101	光电传感器	sensor
12	D206112	介动齿轮轴1	gear shatf 1	40	S10068	樱花拉手	handle
13	D206117	13牙介动齿轮	13 teeth gear	41	A206124	定位销	orientation pin
14	D206103	15牙同步轮	15 teeth synchronous wheel	42	P102510	手柄螺丝	hand-hold screw
15	A201211	16牙介动齿轮	16 teeth gear	43	D206101B	左前侧板	front left side plate
16	U109127	20牙介动齿轮	20 teeth gear	44	A206125	摇杆轴套	sleeve of swing pole shaft
17	D206118	小轮	small wheel	45	A206134	摇杆轴	swing pole shaft
18	D206113	介动齿轮轴2	gear shatf 2	46	A206126	摇杆	swing pole
19	A206223	压紧螺杆	compacting screw	47	A206128	电机垫	motor spacer plate
20	S04041	压簧	compacting spring	48	E06082	步进电机	stepping motor
21	A206122	压紧锁紧螺母	compacting unt	49	S02007	轴承	bearing
22	A206109	撑杆	supporting pole	50	A206119	光电管支架	sensor bracket
23	A206110	上斜板	up slanting plate	51	A206120A	下托板焊合件	down supporting plate
24	A206111	下斜板	down slanting plate	52	A206127	摆杆	swing pole
25	E09076	塑料端子	plastic teerminal block	53	A203622	铆接螺柱	screw
26	A206121	线排固定板	terminal fixing plate	54	A206132	切刀	cutter
27	A206209A	导轨固定条I	fixing bar I of guide track	55	D206116	主动辊	driving roller
28	E02166	40uF电容	capacitor(40uF)	56	A206210A	导轨固定条II	fixing bar II of guide track

表15/List 15　　见图12/See Fig. 12

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
57	E09114	20芯插座	20 pin socket				
58	D206110	20牙双联轮	20 teeth dual gear				
59	D206102B	左后侧板	back left side plate				
60	D206224	12牙同步轮	12 teeth synchronous wheel				
61	S03073	同步带	synchronous belt				
62	A206131	挡光板	lightproof plate				
63	A206130	防护罩	protecting cover				
64	E09144	14芯插座	14 pin socket				
65	A204507	14芯插座安装板一	14 pin socket fixing plate 1				
66	D206108A	切刀光检安装条	sensor fixing bar				
67	D206109B	出口导向	exit guide				

图13
Fig. 13

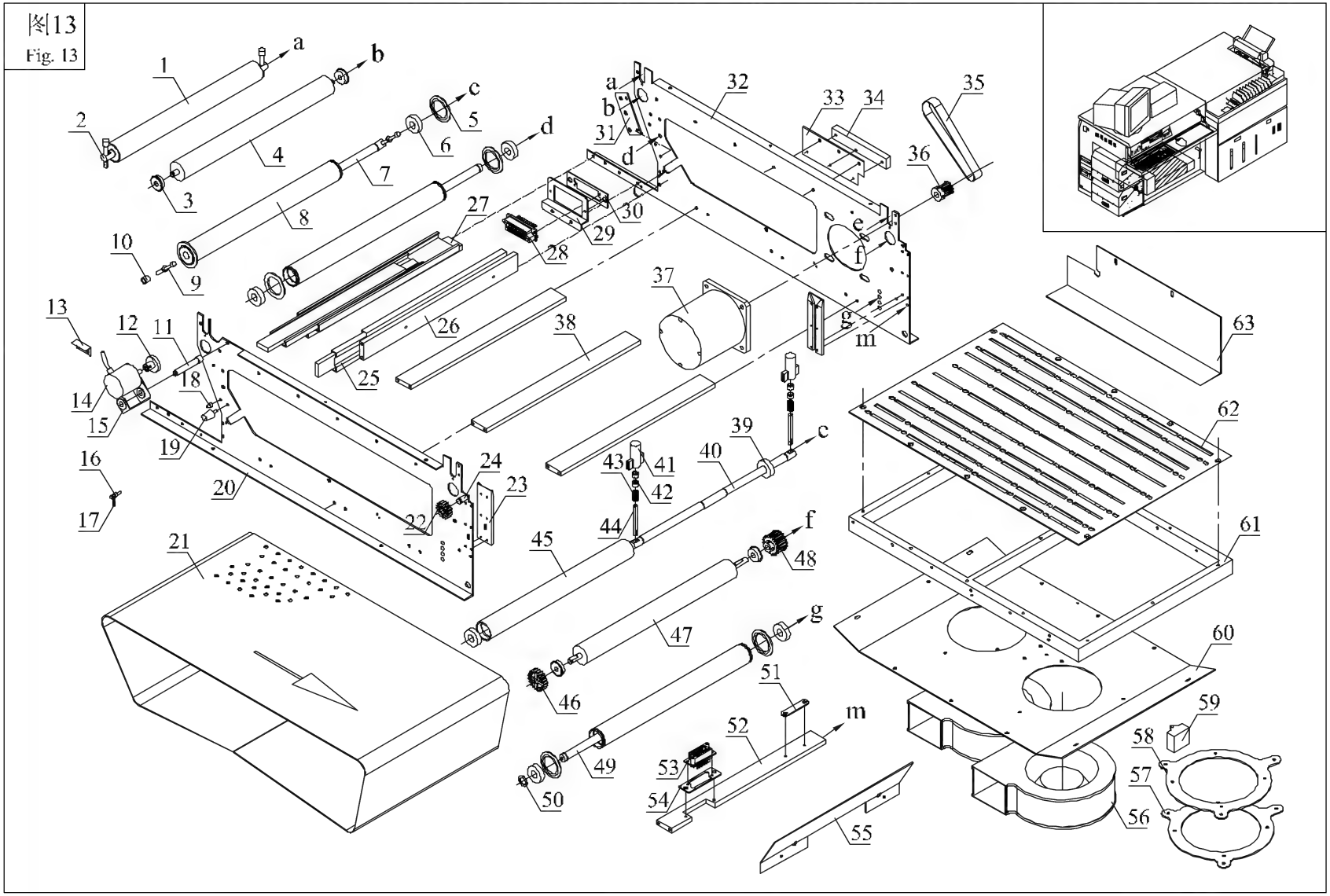

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
a
b
c
d
e
f
g
m

表16/List 16　　见图13/See Fig. 13

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	U206124-02	压紧辊	press roller	29	D206204	插座安装板（30芯）	socket fixing plate
2	D206214	压紧辊轴1	press roller shaft 1	30	B302415	30芯插座安装板	30 pins socket socket fixing plate
3	S02007	轴承	bearing	31	D206203-1B	定位销板	plate
4	A206222	主动轴	driving shaft	32	D206201E	右后侧板	back right side plate
5	A206213	皮带挡圈	baffle ring	33	A206121	线排固定板	terminal fixing plate
6	S02019	轴承	bearing	34	E09076	塑料端子	plastic terminal block
7	D206219	张紧辊轴(加长)	compacting roller shaft (long)	35	S03027	同步带T5x300x15	synchronous belt(T5x300x15)
8	D206221	导向辊(加长)	guide roller (long)	36	D206224	12牙同步轮	12 teeth synchronous wheel
9	D206218	张紧螺杆	compacting screw stem	37	E06083	步进电机	step motor
10	A206219	张紧辊垫套	compacting roller sheath	38	A206109	撑杆	supporting pole
11	D206114	编码器转轴	rotating shaft of encoder	39	S02010	轴承	bearing
12	D206205	编码器轴1	encoder shaft 1	40	D206211	压紧辊轴	compacting roller shaft
13	D206210	编码器托板	encoder supporting plate	41	A206225	压紧螺母罩	compacting unt cover
14	E10138	旋转编码器	encoder	42	A206122	压紧锁紧螺母	compacting unt
15	D206104A	编码器支架	encoder bracket	43	S04048	压簧	compacting spring
16	D206119	编码器拉簧座	spring holder	44	A206223	压紧螺杆	compacting screw
17	S04059	拉簧	extension spring	45	A206113	压紧辊3	compacting roller 3
18	A206124	定位销	orientation pin	46	A208134	21牙齿轮	21 teeth gear
19	P102510	手柄螺丝	hand-hold screw	47	D206206	扩片台主动辊	driving roller of exposure table
20	D206203D	右前侧板	front right side plate	48	A206115	20牙同步轮	20 teeth synchronous wheel
21	D206223	均风带	paper transporting belt	49	D206220	被动轴芯(加长)	driven core shaft (long)
22	A201211	16牙齿轮	16 teeth gear	50	D206222	垫圈	washer
23	D206213A	扩片台导向条	guide bar of exposure table	51	S10028	磁夹	magnet clip
24	A209116	介动齿轮轴	gear shaft	52	A206220	背打定位板	orientation plate of back printer
25	S10067	导轨(12")	triarticular track (12")	53	E09144	14芯插座	30 pins socket
26	A206210A	导轨固定条2	triarticular track fixing bar 2	54	A206221	14芯插座板	30 pins socket fixing plate
27	A206209A	导轨固定条1	triarticular track fixing bar 1	55	D206217	扩片台分风板	disperse wind plate
28	E09223	30芯插座	30 pins socket	56	E06069	离心风机	centrifugal fan

表17/List 17　　见图13/See Fig. 13

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
57	A206206	风机安装板	fan fixing plate				
58	A206207	风机橡胶垫	fan rubber mat				
59		电容	capacitor				
60	D206216	风机固定板	fan fixing plate				
61	D206212B	铝框	aluminum frame				
62	D206215	布风板	wind plate				
63	A206130	防护罩	protecting cover				

图14
Fig. 14

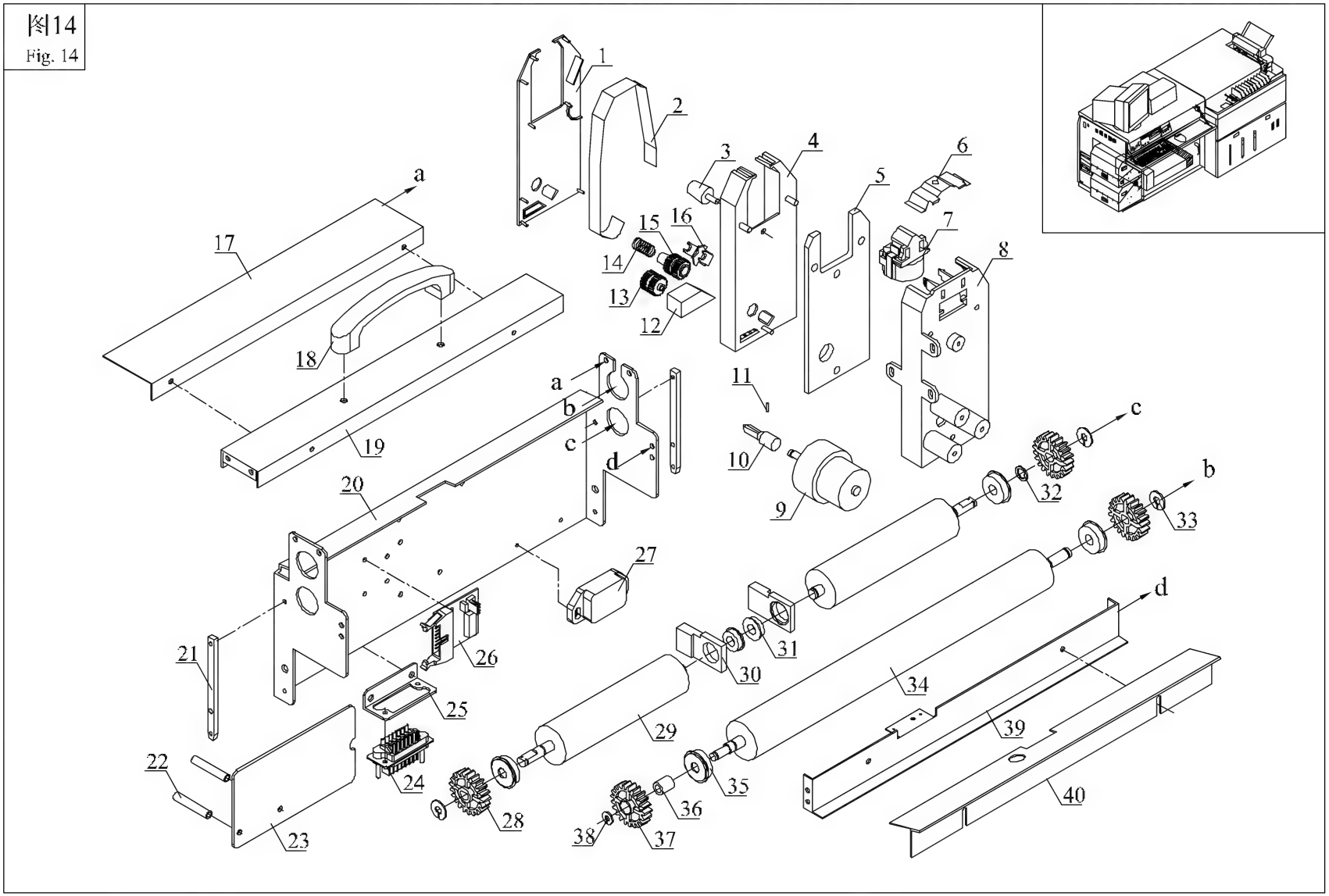

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
a
b
c
d

表18/List 18　　见图14/See Fig. 14

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A206314	色带盒盖	ribbon box cover	29	A206309	主动轴	driving shaft
2	S10048	防水色带	ribbon	30	U206310	轴承支架（左右件）	bearing bracket
3	P102510	手柄螺丝	hand-hold screw	31	S02010	轴承	bearing
4	A206313	色带盒	ribbon box	32	A208145	垫圈	washer
5	A206318	色带盒垫块	ribbon box spacer block	33	A208144-01	φ6卡片	φ6 ring
6	A206312	背打弹簧压片	spring piece of back printer	34	D206302	背打安装架压辊	press roller of fixing frame
7	E10032	打印头	print head	35	S02007	轴承	bearing
8	A206310	背打安装架	fixing board of back printer	36	S02011	差动滚针轴承	bearing
9	E06001	背打电机	motor of back printer	37	A207013	21牙介动齿轮	21 teeth gear
10	A206311	色带传动齿轮	ribbon transporting gear	38	A208143	φ4卡片	φ4 ring
11	S01044	弹性圆柱销	columniform pin	39	D206304	后导向固定板	back guide fixing plate
12		色带海绵	sponge	40	A206308	后导向板焊合件	back guide plate
13	A206316	色带介动齿轮	ribbon passiveness gear				
14	S04065	色带弹簧	spring				
15	A206315	色带主动齿轮	ribbon initiative gear				
16	A206317	色带介动齿轮架	passiveness gear bracket				
17	A206320	挡光板	lightproof plate				
18	S10018	拉手	handle				
19	D206303	拉手板焊合件	handle plate				
20	D206301B	背打安装架	back printer fixing bracket				
21	A206321	扩片台导向条二	guide bar 2 of exposure table				
22	A206304	固定杆	fixing pole				
23	A206305	压线板	press line board				
24	E09144	14芯插座	14 pins socket				
25	A206306	14芯插座安装板二	14 pins socket fixing plate 2				
26	PrintConnet-A101	背打转接板	transform board of back printer				
27	S10028	磁夹及磁夹板	magnet clip				
28	A208134	21牙齿轮	12 teeth gear				

图15
Fig. 15

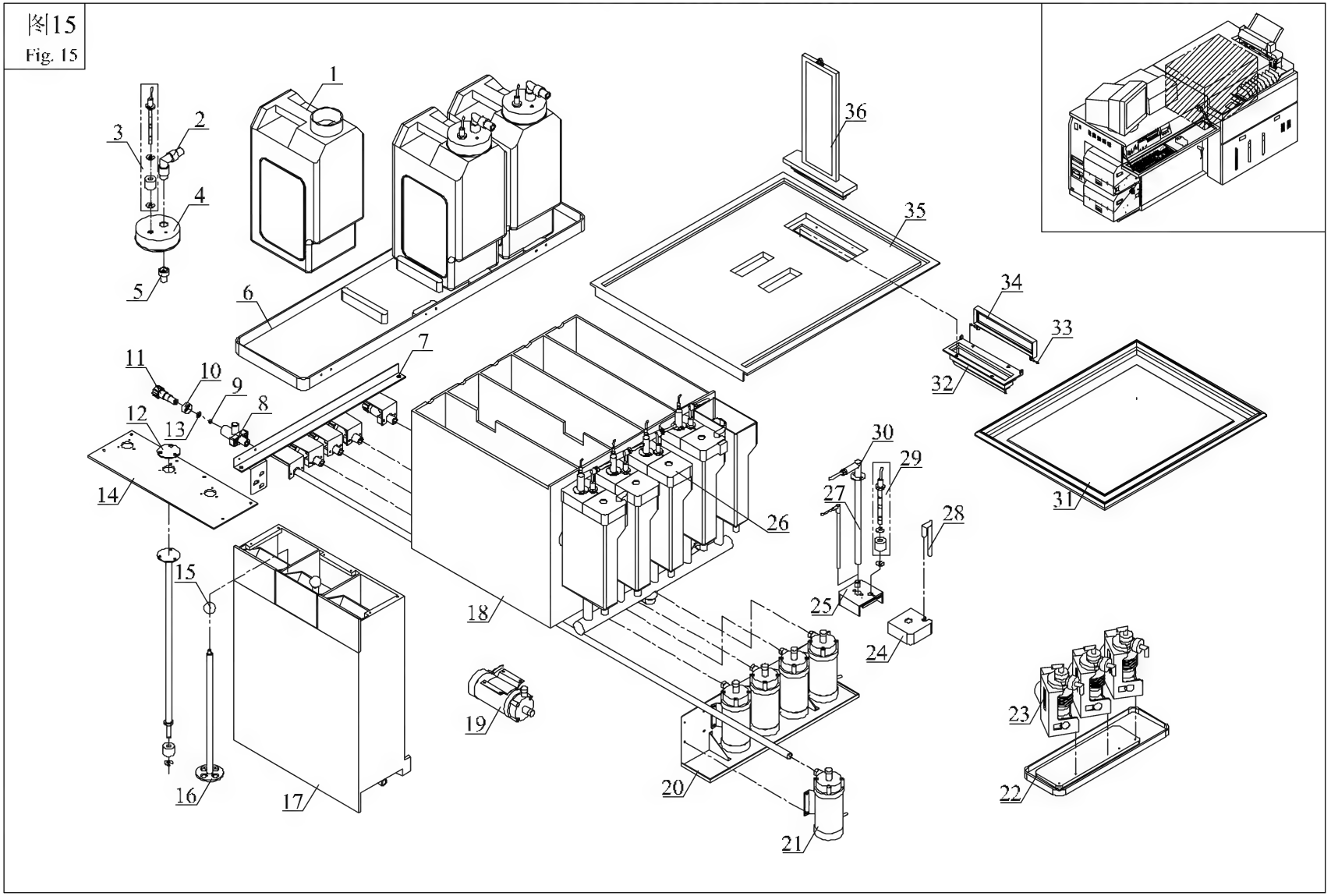

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36

表19/List 19　　见图15/See Fig. 15

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	S10035	废液桶	waste barrel	26	A212403	加热包盖ⅡC	cover IIC of heating box
2	P112108-24	弯头	syphon	27	E05019	温度探头	temperature sensor
3	ZH001	废液桶-彩显液位探头	waste liquor level sensor(for CD)	28	A212415	补液弯管	replenishing pipe elbow
	ZH008	废液桶-漂定液位探头	waste liquor level sensor(for BF)	29	ZH052	水箱药包-漂定液位探头	liquor level sensor(for CD)
	ZH004	废液桶-稳定液位探头	waste liquor level sensor(for STB)		ZH013	水箱药包-稳定1液位探头	liquor level sensor(for STB 1)
4	ZH108	废液桶盖组件	waste barrel cover		ZH053	水箱药包-稳定2液位探头	liquor level sensor(for STB 2)
5	A212302	废液弯头接头	waste elbow joint		ZH054	水箱药包-稳定3液位探头	liquor level sensor(for STB 3)
6	A202549	废液桶底板	waste barrel bottom board	30	E07002	不锈钢加热棒(彩显用)	stainless steel heating pole
7	A202430	水箱搁条焊合件	tank supporting board		E07012	钛加热棒(漂定用)	titanium heating pole(for BF)
8	S10061	阀体	valve body		E07020	钛加热棒(稳定用)	titanium heating pole(for STB)
9	S10080	阀门小O型圈	valve O ring (small)	31	A202505	存水盘	water deposit plate
10	S10076	卷盖	valve cover	32	A212416	暗盒座	dark box holder
11	S10014	手柄	handle	33	S04029	扭簧（暗盒座）	distort spring
12	P112203-04	法兰盖	cover	34	A212417	暗盒座盖	dark box holder cover
13	S10079	阀门大O型圈	valve O ring (big)	35	A212401	水箱盖	tank cover
14	A212202	药液箱上盖	cover of tank	36	A212418	试条暗盒组件	dark box discreteness
15	P112204-06	胶木球（黑）	wooden rubber ball(black)				
	P112204-05	胶木球(红)	wooden rubber ball(red)				
16	A212204	搅拌棒合件	stirring bar				
17	A212201	药液箱焊合件(总成)	tank				
18	A212101	水箱	tank				
19	E06011	15R循环泵	circulation pump				
20	A202471	循环泵底板	circulation pump bottom board				
21	S10016	喉箍φ20	Φ20 hoop				
22	A202561	补液泵底板	bottom board of replenishing pump				
23	E06003	单头补液泵	single-head replenishing pump				
24	A212402	加热包盖ⅡB	cover IIB of heating box				
25	P112109	加热盒盖1	cover Ⅰ of heating box				

图16
Fig. 16

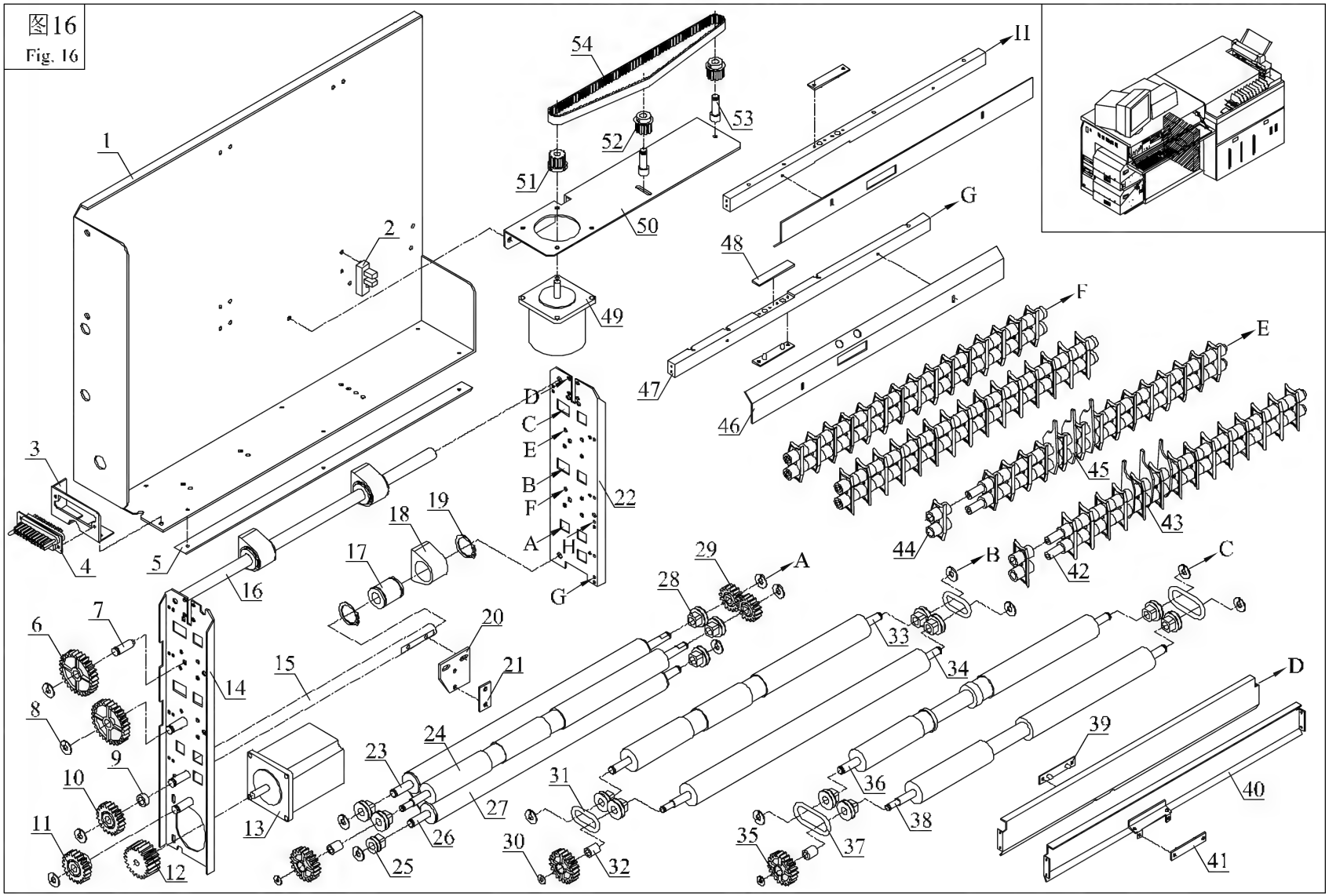

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
A
B
C
D
E
F
G
H
II

表20/List 20　　见图16/See Fig. 16

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	D215001	后支架	back bracket	29	A209213	传动齿轮(16牙)	16 teeth gear
2	GK112-D101	光检	sensor	30	A208143	φ4卡片	φ4 ring
3	A215001	20芯插座架1	bracket of 20 pins socket	31	S04021	拉簧 (0.4*3*63)	extension spring(0.4*3*63)
4	E09145	20芯接插件	20 pins socket	32	S02011	差动滚针轴承	unidirectional needle bearing
5	A215003	导轨板	guide board	33	A215004	过桥用短轴一	short roller 1
6	D207006	32牙介动齿轮	32 teeth gear	34	A215005	过桥用长轴二	long roller 2
7	A209116	介动齿轮轴	gear shaft	35	A207013	21牙介动齿轮	21 teeth gear
8	A208144-01	φ6卡片	φ6 ring	36	D215009	双轨道被动辊	distributor axis(passiveness)
9	A208145	垫圈	washer	37	S04012	拉簧 (0.4*3*90)	extension spring(0.4*3*90)
10	U109127A	20牙扁齿轮	20 teeth gear	38	D215008	双轨道主动辊	distributor axis(initiative)
11	D215011	20牙长齿轮	20 teeth long gear	39	LSE-D101	红外发射二极管	infrared-emitting diode
12	D215010	21牙铝合金齿轮	21 teeth aluminum gear	40	D215005	上导向板焊合件	up guide board
13	E06009	步进电机(57BYG306)	stepping motor(57BYG306)	41	LSL-D101	红外接收二极管	infrared-receiving diode
14	D215006A	活动架左旁板	left sideboard of flexible bracket	42	A208125	支撑轴	supporting shaft
15	D215004	导杆2	leader shaft 2	43	D215015	中间导向板（下）	middle guide board (down)
16	D215003	导杆1	leader shaft 1	44	A215011	纸架中间导向	rack middle guide
17	S02008	轴承	beeline bearing	45	D215014	中间导向板（上）	middle guide board (up)
18	A215018	直线轴承座	beeline bearing holder	46	A215010	导向板	guide board
19	S01298	轴用挡圈	retainer ring	47	A215027	光电管支架2	bracket 2 of sensor
20	A215024	拉板焊合件	stretch board	48	A215028	光电管盖板	glass cover of sensor
21	A215025	压板	press board	49	E06008	步进电机(57BYG301)	stepping motor(57BYG301)
22	D215007	活动架右旁板	right sideboard of flexible bracket	50	D215002	双轨道电机安装板	dual-ramp motor fixing board
23	A215021	过桥用短轴二	short roller 2	51	A215013	同步轮（三）(Φ6.4)	11 teeth synchronous wheel 3
24	A215020	过桥用长轴一	long roller 1	52	A215014	11牙同步轮（六）(Φ7)	11 teeth synchronous wheel 6
25	A207018	四氟套1	plastic bearing 1	53	A215023	从动轴	driven shaft
26	A215022	过桥用短轴三	short roller 3	54	S03028	同步带	synchronous belt
27	D215013	双轨道橡胶套	guide rubber blet				
28	A208141	轴套	plastic bearing				

图17
Fig. 17

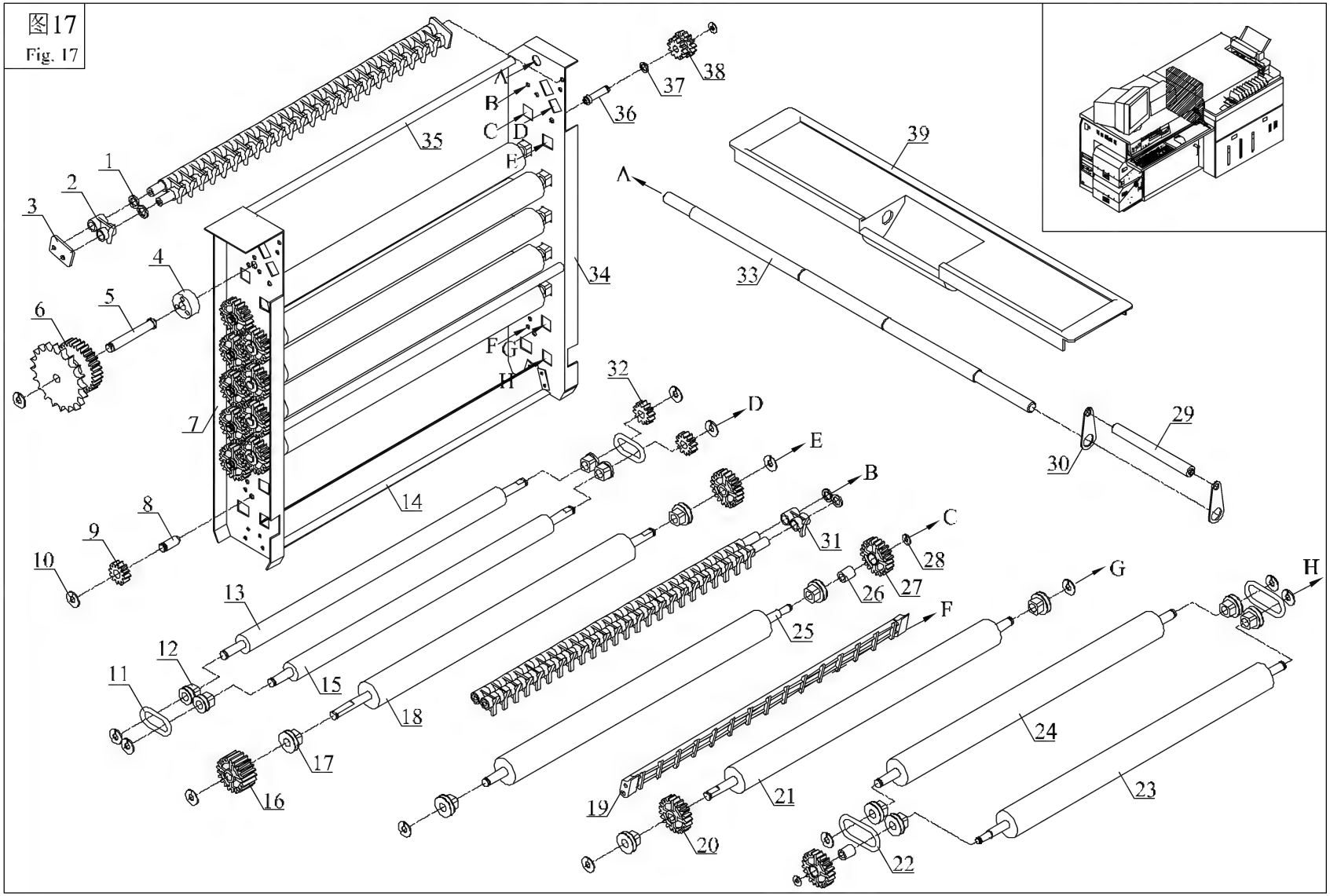

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
A
B
C
D
E
F
G
H

表21/List 21　　见图17/See Fig. 17

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A208145	垫圈	washer	29	A207005	提升架拉手轴	handle shaft
2	A208126	架子导向	rack guide	30	U208120	拉手板	handle board
3	A207009	保护板	protection board for guide	31	U207013	架子导向	rack guide
4	A207012	过桥架加强板	intensifying board	32	A208132	12牙齿轮	12 teeth gear
5	A207011	过桥架主链轮轴	main sprocket shaft	33	A207003	提升架搁轴	holder shaft
6	A208131	双联介动齿轮	dual driven gear	34	A207002A	提升架后墙板	back wallboard
7	A207001A	提升架前墙板	front wallboard	35	A209123	支撑轴	supporting shaft
8	A209116	导向轮轴	shaft of gear	36	A207019	12/14双联轮介动轴	shaft of dual gear
9	A207014	12牙介动齿轮	12 teeth gear	37	S10092	塑料垫圈	washer
10	A208144-01	Φ6卡片	φ6 ring	38	A207015	介动双联齿链轮	dual spocket
11	S04021	拉簧	stretch spring	39	A207004	提升架罩	cover of raiser rack
12	A208142	四氟套1	plastic bearing 1				
13	A208122	被动辊	driven roller				
14	A207010A	提升架进纸导向	guide board				
15	A208121	上辊	upper roller				
16	A208130	21牙厚齿轮	21 teeth thick gear				
17	A208141	轴套	plastic bearing 1				
18	A207008A	提升架辊子	roller of raiser rack				
19	A208123	槽架导向板	plastic guide				
20	A208134	21牙齿轮	21 teeth gear				
21	A208112	错位辊一	cross roller 1				
22	S04012	拉簧	stretch spring				
23	A207006	过桥架底部主动辊	bottom driving roller				
24	A208115	橡胶套撑轴一	bottom driven roller				
25	A207007	提升架PVC辊	PVC roller of raiser rack				
26	S02011	差动滚针轴承	unidirectional needle bearing				
27	A207013	21牙介动齿轮	21 teeth gear				
28	A208143	Φ4卡片	φ4 ring				

图18
Fig. 18

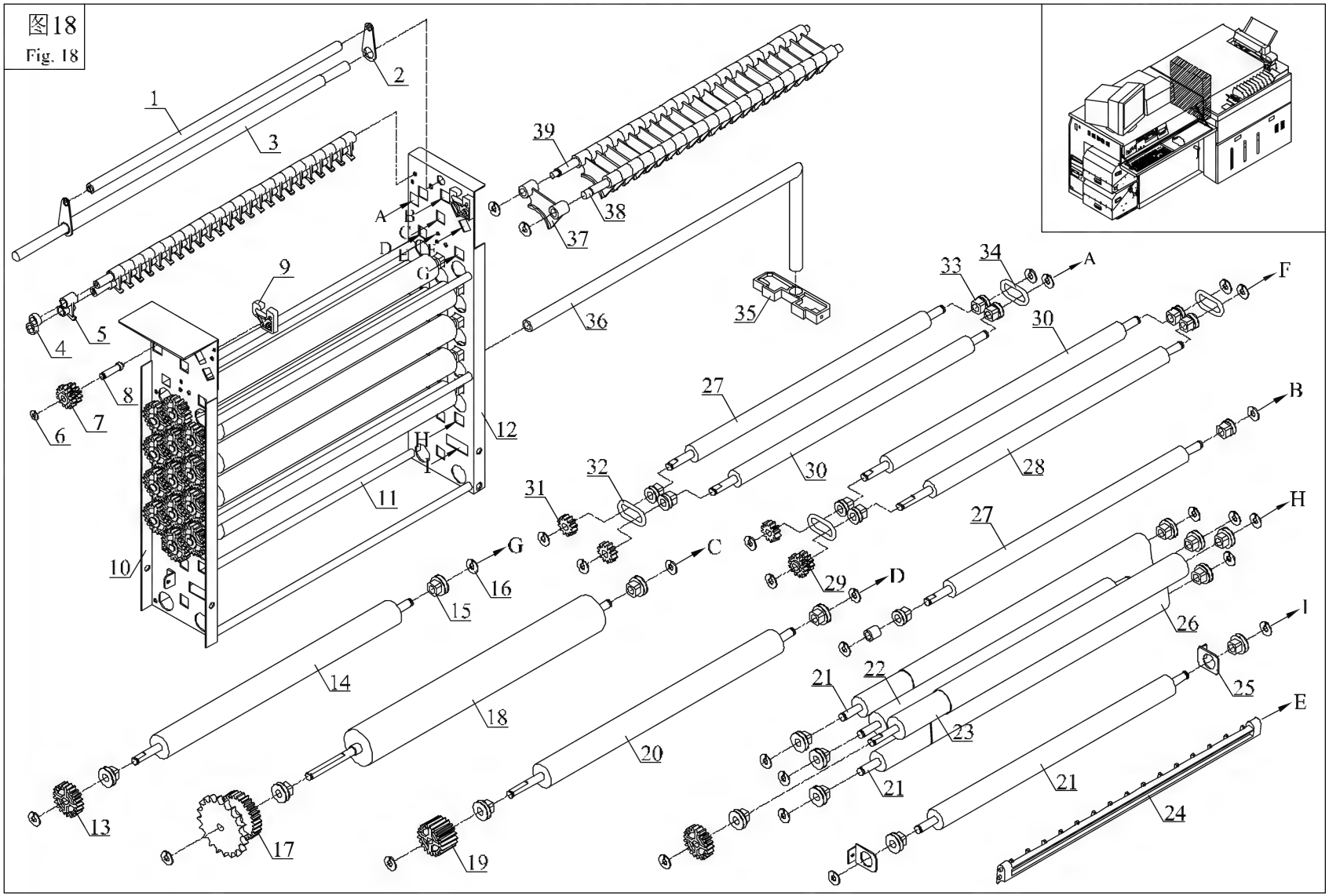

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
A
B
C
D
E
F
G
H
I

表22/List 22　　见图18/See Fig. 18

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A208129	彩显架拉手轴	handle shaft of CD rack	27	A208121	上辊	up roller
2	A208128	拉手板	handle board	28	A208120	主动辊	driving roller
3	A208127	搁轴	handle shanft	29	A208135	12/14双联主动齿轮	12/14 dual driving gear
4	A208145	垫圈	washer	30	A208122	被动辊	driven roller
5	A208126	架子导向	rack guide	31	A208132	12牙齿轮	12 teeth gear
6	A208143	Φ4卡片	φ4 ring	32	S04074	拉簧	stretch spring
7	A208131	12/14双联介动齿轮	12/14 dual driven gear	33	A207018	四氟套2	plastic bearing 2
8	A208124	12/14双联齿轮介动轴	dual driven gear shaft	34	S04073	拉簧	stretch spring
9	A208139	上导向卡扣一	buckle 1 of upper guide	35	A208111	喷淋下固定板	bracket of spraying roller
10	A208401	彩显前旁板(30″)	CD front wallboard(30")	36	A208405	喷淋轴(30″)	spraying roller30")
	A208101	彩显前旁板(45″)	CD front wallboard(45")		A208107	喷淋轴(45″)	spraying roller(45")
11	A208125	支撑轴	supporting shaft	37	A208138	上导向	upper guide
12	A208402	彩显后旁板(30″)	CD back wallboard(30")	38	A208136	上导向动轴	moving axle of upper guide
	A208102	彩显后旁板(45″)	CD back wallboard(45")	39	A208137	上导向定轴	dead axle of upper guide
13	A208134	21牙齿轮	21 teeth gear				
14	A208112	错位辊一	cross roller 1				
15	A208141	四氟套	plastic bearing				
16	A208144-01	Φ6卡片	φ6 ring				
17	A208133	双联齿链轮	dual sprocket				
18	A208114	大辊	big roller				
19	A208130	21牙厚齿轮	21 teeth thick gear				
20	A208113	错位辊二	cross roller 2				
21	A208118	橡胶套撑轴四	supporting roller 4 of rubber sleeve				
22	A208115	橡胶套撑轴一	supporting roller 1 of rubber sleeve				
23	A208117A	橡胶套撑轴三	supporting roller 3 of rubber sleeve				
24	A208123	槽架导向板	rack guide board				
25	X208107	槽架连接板	connecting board of rack				
26	A208119	橡胶套	rubber sleeve				

图19
Fig. 19

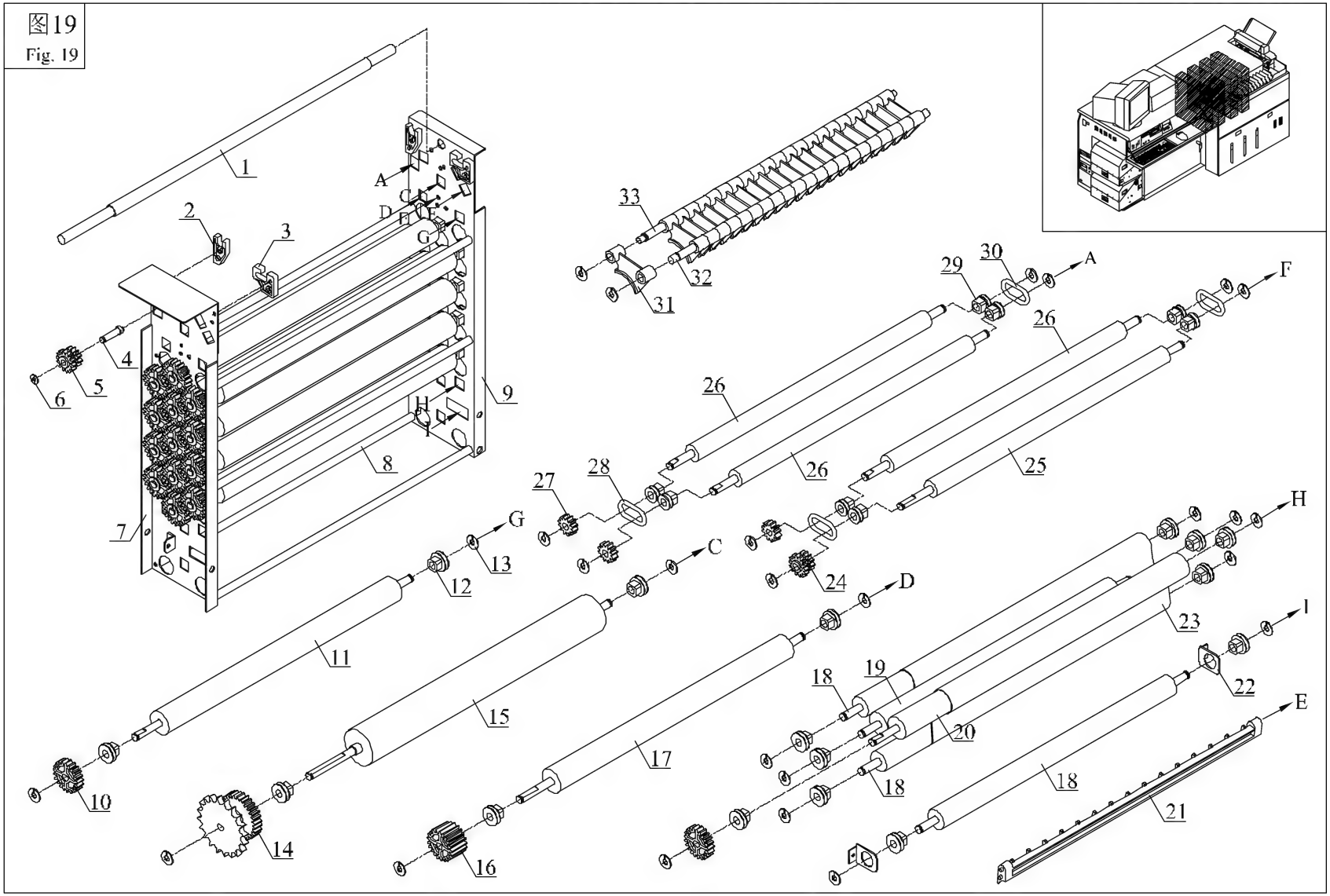

1
2
3
4
5
6
7
8
9
A
D
F
G
H
I
33
32
31
29
30
A
F
26
26
26
25
27
28
24
C
D
G
13
12
11
10
15
14
16
17
18
19
20
18
18
23
H
I
22
E
21

表23/List 23　　见图19/See Fig. 19

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A208127	搁轴	handle shanft	27	A208132	12牙齿轮	12 teeth gear
2	A208140	上导向卡扣二	buckle 2 of upper guide	28	S04074	拉簧	stretch spring
3	A208139	上导向卡扣一	buckle 1 of upper guide	29	A207018	四氟套2	plastic bearing 2
4	A208124	12/14双联齿轮介动轴	dual driven gear shaft	30	S04073	拉簧	stretch spring
5	A208131	12/14双联介动齿轮	12/14 dual driven gear	31	A208138	上导向	upper guide
6	A208143	Φ4卡片	φ4 ring	32	A208136	上导向动轴	moving axle of upper guide
7	A208301	漂/稳定短插架前旁板	BF/STB front wallboard	33	A208137	上导向定轴	dead axle of upper guide
	A208201	漂定插架前旁板	BF front wallboard(45")				
8	A208125	支撑轴	supporting shaft				
9	A208302	漂/稳定短插架后旁板	BF/STB back wallboard				
	A208202	漂定插架后旁板	BF back wallboard(45")				
10	A208134	21牙齿轮	21 teeth gear				
11	A208112	错位辊一	cross roller 1				
12	A208141	四氟套	plastic bearing				
13	A208144-01	Φ6卡片	φ6 ring				
14	A208133	双联齿链轮	dual sprocket				
15	A208114	大辊	big roller				
16	A208130	21牙厚齿轮	21 teeth thick gear				
17	A208113	错位辊二	cross roller 2				
18	A208118	橡胶套撑轴四	supporting roller 4 of rubber sleeve				
19	A208115	橡胶套撑轴一	supporting roller 1 of rubber sleeve				
20	A208117A	橡胶套撑轴三	supporting roller 3 of rubber sleeve				
21	A208123	槽架导向板	rack guide board				
22	X208107	槽架连接板	connecting board of rack				
23	A208119	橡胶套	rubber sleeve				
24	A208135	12/14双联主动齿轮	12/14 dual driving gear				
25	A208120	主动辊	driving roller				
26	A208121	上辊	up roller				

烘干7号架 Dryer rack(No. 7 rack)

见表24 See List 24

图20
Fig. 20

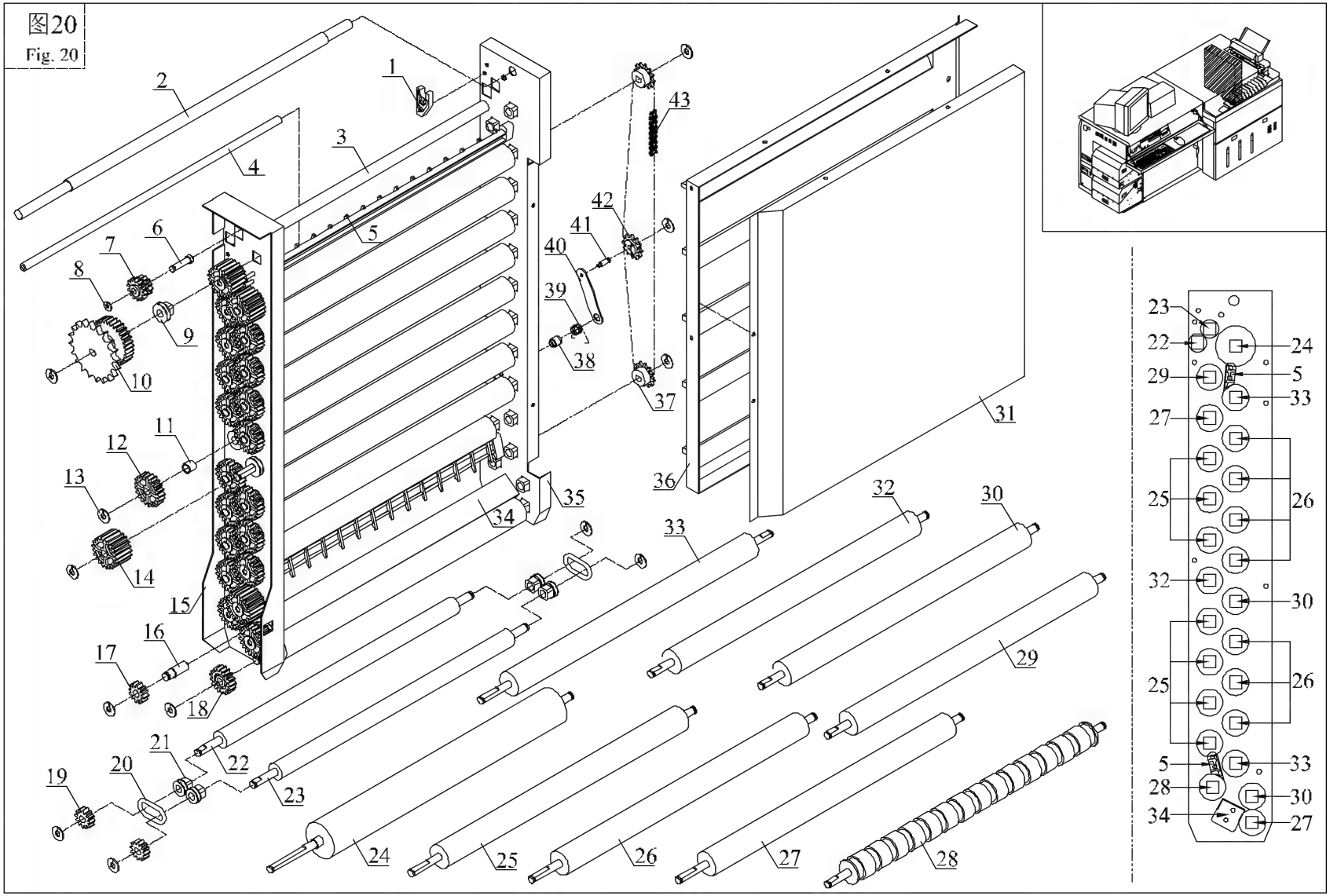


表24/List 24　　见图20/See Fig. 20

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A208140	上导向卡扣2	buckle 2 of upper guide	29	A208113	错位辊二	cross roller 2
2	A209124	搁轴	handle shanft	30	A209121	烘干架错位辊二	cross roller 2 of dryer rack
3	A209119	支撑轴2	supporting shaft 2	31	A209107-02	导风板	cover of wind through
4	A209123	支撑轴	supporting shaft	32	A209105	烘干架铝辊3	aluminum roller 3 of dryer rack
5	A208123	槽架导向板	rack guide board	33	A209207	烘干架铝辊2	aluminum roller 2 of dryer rack
6	A208124	12/14双联轮介动轴	dual driven gear shaft	34	A209117	烘干7号架下转弯导向	guide board in bottom
7	A208131	12/14双联介动齿轮	12/14 dual driven gear	35	A209102	烘干架后墙板A	back wallboard A of dryer rack
8	A208143	Φ4卡片	φ4 ring	36	A209107	风道板碰焊图	board of wind through
9	A207017	轴套	plastic bearing	37	A209113	11牙链轮	11 teeth sprocket
10	A208133	双联齿链轮	dual sprocket	38	A209110	烘干架链条张紧轮轴	sprocket shaft
11	A208145	垫圈	washer	39	S04031	扭力弹簧	twist spring
12	A208134	21牙齿轮	21 teeth gear	40	A209111	张紧板	strain board
13	A208144-01	Φ6卡片	φ6 ring	41	A209114	张紧板固定轴	strain board shaft
14	A208130	21牙厚齿轮	21 teeth thick gear	42	A209112	从动链轮	driven sprocket
15	A209101	烘干架前墙板A	front wallboard A of dryer rack	43	S03003	滚子链条	chain
16	A209118	导向轮轴	gear shaft				
17	A207014	12牙介动齿轮	12 teeth driven teeth				
18	A209115	17牙齿轮	17 teeth gear				
19	A208132	12牙齿轮	12 teeth gear				
20	S04021	拉簧	stretch spring				
21	A207018	四氟套1	plastic bearing 1				
22	A208122	被动辊	driven roller				
23	A209103	PU-吸水辊	roller for absorbing water				
24	A208114	大辊	big roller				
25	A209104	烘干架铝辊1	aluminum roller 1 of dryer rack				
26	A209122	烘干架错位辊一	cross roller 1 of dryer rack				
27	A208112	错位辊一	cross roller 1				
28	A209120	烘干架橡胶辊2	rubber roller 2 of dryer rack				

烘干8号架/Dryer rack(No. 8 rack)　　见表25 See List 25

图21
Fig. 21

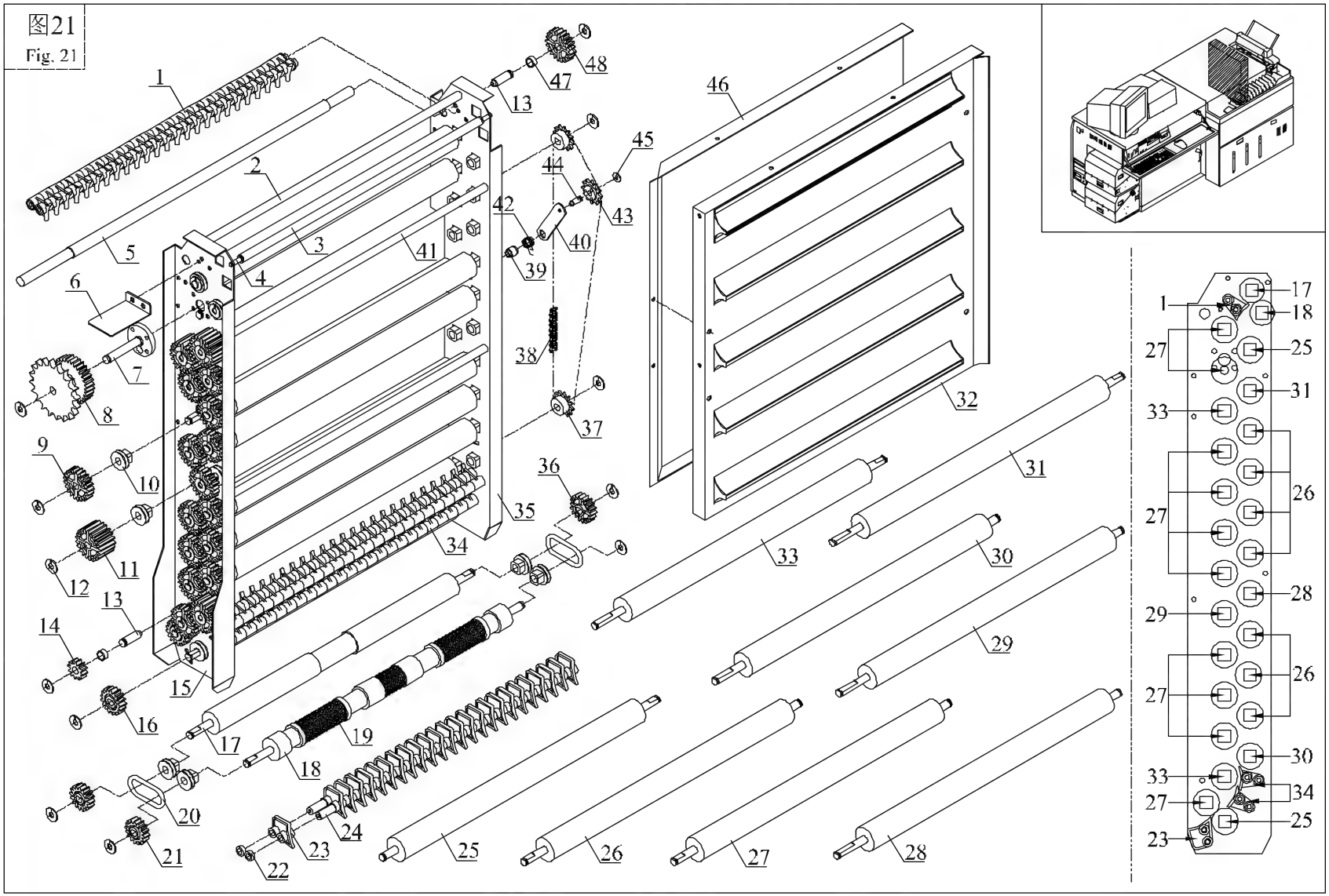


表25/List 25　　见图21/See Fig. 21

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A208126	架子导向	rack guide	29	A209121	烘干架错位辊二	cross roller 2 of dryer rack
2	A208125	支撑轴	supporting shaft	30	A208113	错位辊二	cross roller 2
3	T06172	热缩管	rubber cover	31	A209207	烘干架铝辊2	aluminum roller 2 of dryer rack
4	A209215	烘干架导向轴	shaft of dyrer exit	32	A209107	风道板碰焊图	board of wind through
5	A209124	搁轴	handle shanft	33	A209109	错位辊八	cross roller 8
6	A209206	烘干架齿轮护板	gear cover board	34	U207013	架子导向	rack guide
7	A209216	烘干架主链轮轴焊接图	driving sprocket shaft	35	A209202	烘干架后墙板B	back wallboard B of dryer rack
8	A207015	双联齿链轮	dual sprocket	36	A209208A	18牙齿轮	18 teeth gear
9	A208134	21牙齿轮	21 teeth gear	37	A209113	11牙链轮	11 teeth sprocket
10	A207017	轴套	plastic bearing	38	S03003	滚子链条	chain
11	A208130	21牙厚齿轮	21 teeth thick gear	39	A209114	张紧板固定轴	strain board shaft
12	A208144-01	Φ6卡片	φ6 ring	40	A209111	张紧板	strain board
13	A209116	介动齿轮轴	gear shaft	41	A209123	支撑轴	supporting shaft
14	A207014	12牙介动齿轮	12 teeth driven gear	42	S04031	扭力弹簧	twist spring
15	A209201	烘干架前墙板B	front wallboard B of dryer rack	43	A209112	从动链轮(Z=12)	driven sprocket
16	A209115	17牙齿轮	17 teeth gear	44	A209110	烘干架链条张紧轮轴	sprocket shaft
17	A209203	烘干出口用长轴	long roller of dryer exit	45	A208143	Φ4卡片	φ4 ring
18	A209204	烘干架出口刺毛辊	thorn-shape roller of dryer exit	46	A209107-02	导风板	cover of wind through
19	S10071	刺毛套	thorn-shape coil	47	A208145	垫圈	washer
20	S04026	拉簧	stretch spring	48	A209212	介动齿轮(圆)	driven gear
21	A209213	16牙齿轮	16 teeth gear				
22	S10092	塑料垫圈	plastic washer				
23	A209205	纸架上导向	plastic guide				
24	A209214	支撑轴	supporting shaft				
25	A208112	错位辊一	cross roller 1				
26	A209104	烘干架铝辊1	aluminum roller 1 of dryer rack				
27	A209122	烘干架错位辊一	cross roller 1 of dryer rack				
28	A209105	烘干架铝辊3	aluminum roller 3 of dryer rack				

图22
Fig. 22

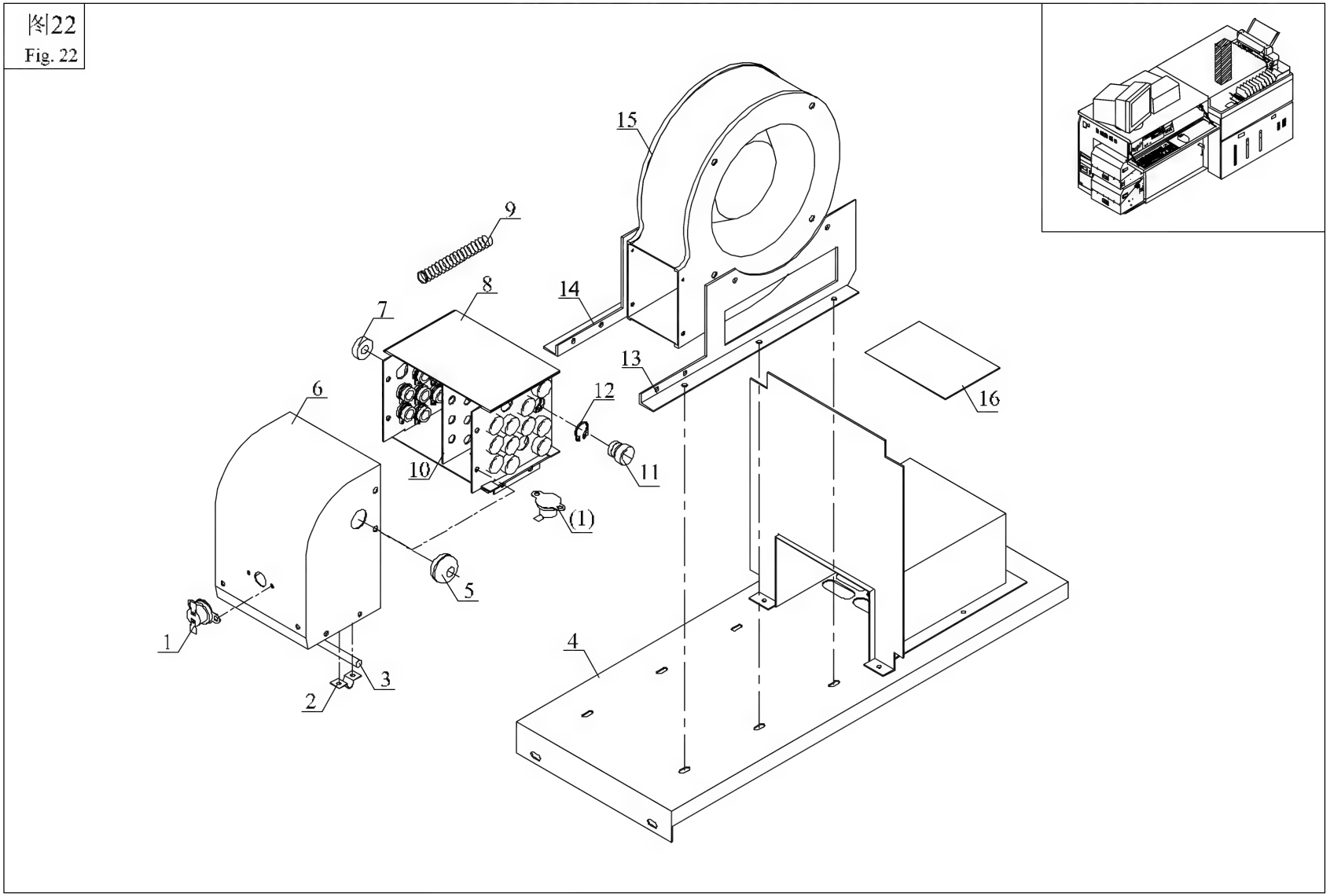
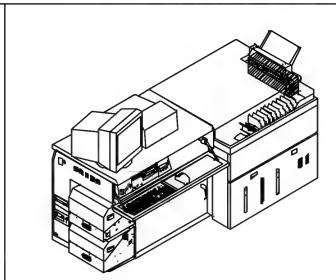


表26/List 26　　见图22/See Fig. 22

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	E10092	温度继电器	temperature relay				
2	A211009	探头压板	clamping board of sensor				
3	E05022	温度传感器	temperature sensor				
4	A211005	烘干箱底板焊合件	base board				
5	E09186	护线套	sheath				
6	A211002	出风口罩	cover				
7	E10010	宝塔瓷	porcelain				
8	A211001	烘干器焊合	welded dryer				
9	E07007	电热丝（1200W）	heating wire （1200W）				
10	A211006	电热丝支撑板	support board				
11	A211010	隔热套	insulated sheath				
12	S01294	轴用挡圈	block ring				
13	A211003	风机固定板二	fan fixing bracket 2				
14	A211004	风机固定板一	fan fixing bracket 1				
15	E06068	烘干风机	dryer fan				
16	A211008	隔离板	insulated board				

图23
Fig. 23



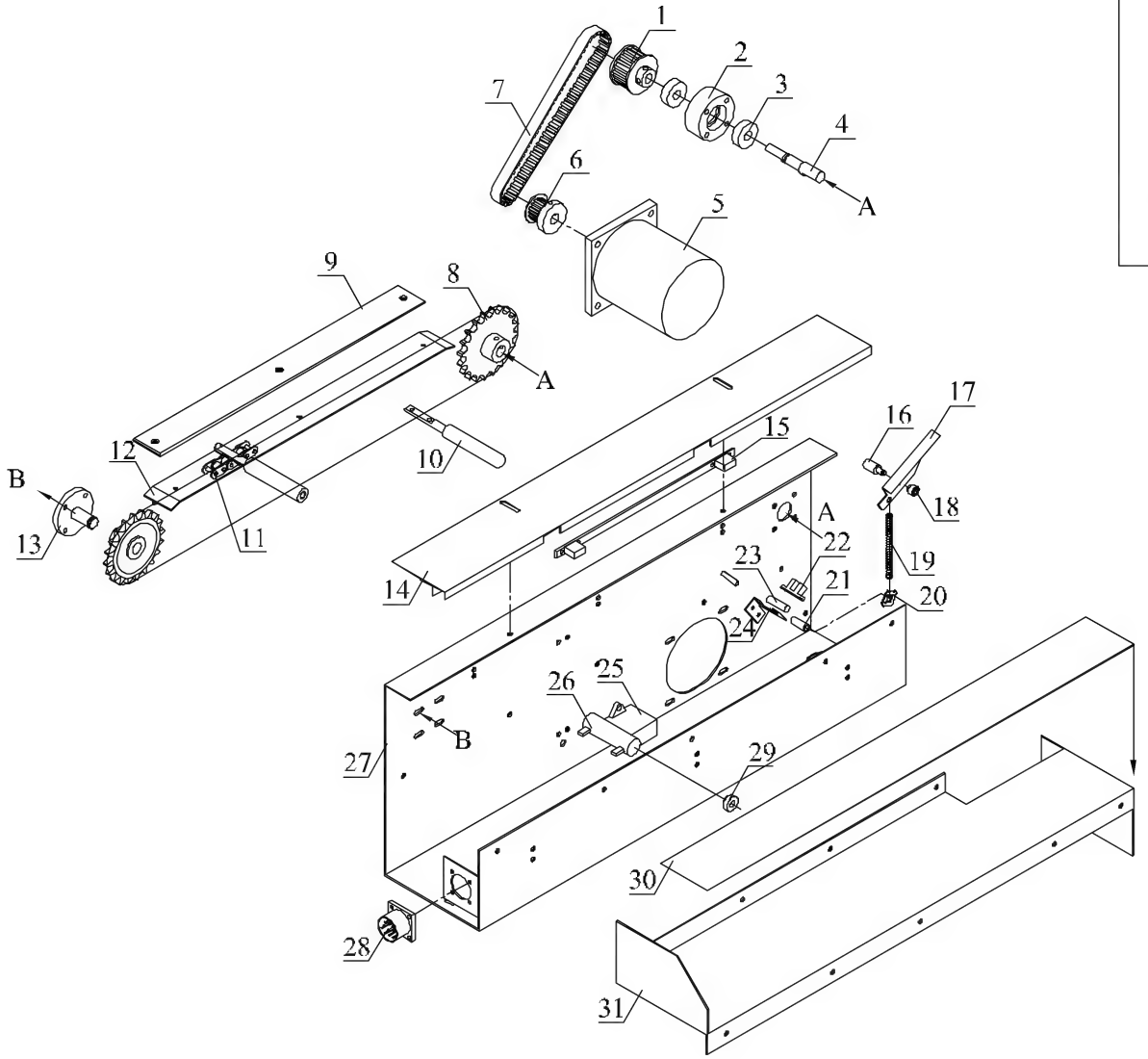

1
2
3
4
A
7
6
5
9
8
A
12
10
B
13
11
15
16
17
18
A
22
23
19
14
21
20
24
25
26
B
27
29
30
28
31

表27/List 27　　见图23/See Fig. 23

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A210009A	20牙同步轮	20 teeth synchronous wheel	29	S10093	电阻定位套	resistor fixation bush
2	A210007	轴承座	bearing holder	30	A210021	罩盖防护垫	protecting film
3	S02012	608轴承	bearing 608	31	A210002	罩盖	cover
4	A210010	主动轴	initiative shaft				
5	E06060	同步电机	motor				
6	A210022	15牙同步轮	15 teeth synchronous wheel				
7	S03072	同步带	synchronous belt				
8	A210011	大链轮（主动）	big sprocket wheel(initiative)				
9	A210006-1	链条垫板	chain supporting board				
10	A210004	拨杆合件	floating shaft				
11	S03010	滚子链条	chain				
12	A210006	托板	supporting board				
13	A210019	尾轮轴座	shaft holder				
14	A210014	盖板碰焊图	cover board				
15	SortTwoSensor-D101	光电传感器	sensor				
16	A210016	分户小车短轴	short shaft				
17	A210003	分户小车杠杆	lever				
18	A210020	支柱	supporting pole				
19	S04053	拉簧（带盘头）	spring				
20		梅花卡片	ring				
21	A210018	拉弹簧小轴	small shaft of stretch spring				
22	JK112-D101	光检	sensor				
23	A210017	杠杆搁轴	handle shaft				
24	A210015	光电管支架	sensor bracket				
25		电容(电机自带)	capacitor				
26		电阻(电机自带)	resistor				
27	A210001	分户小车基板碰焊图	basis board				
28	E09029	航空插座	socket				

图24
Fig. 24

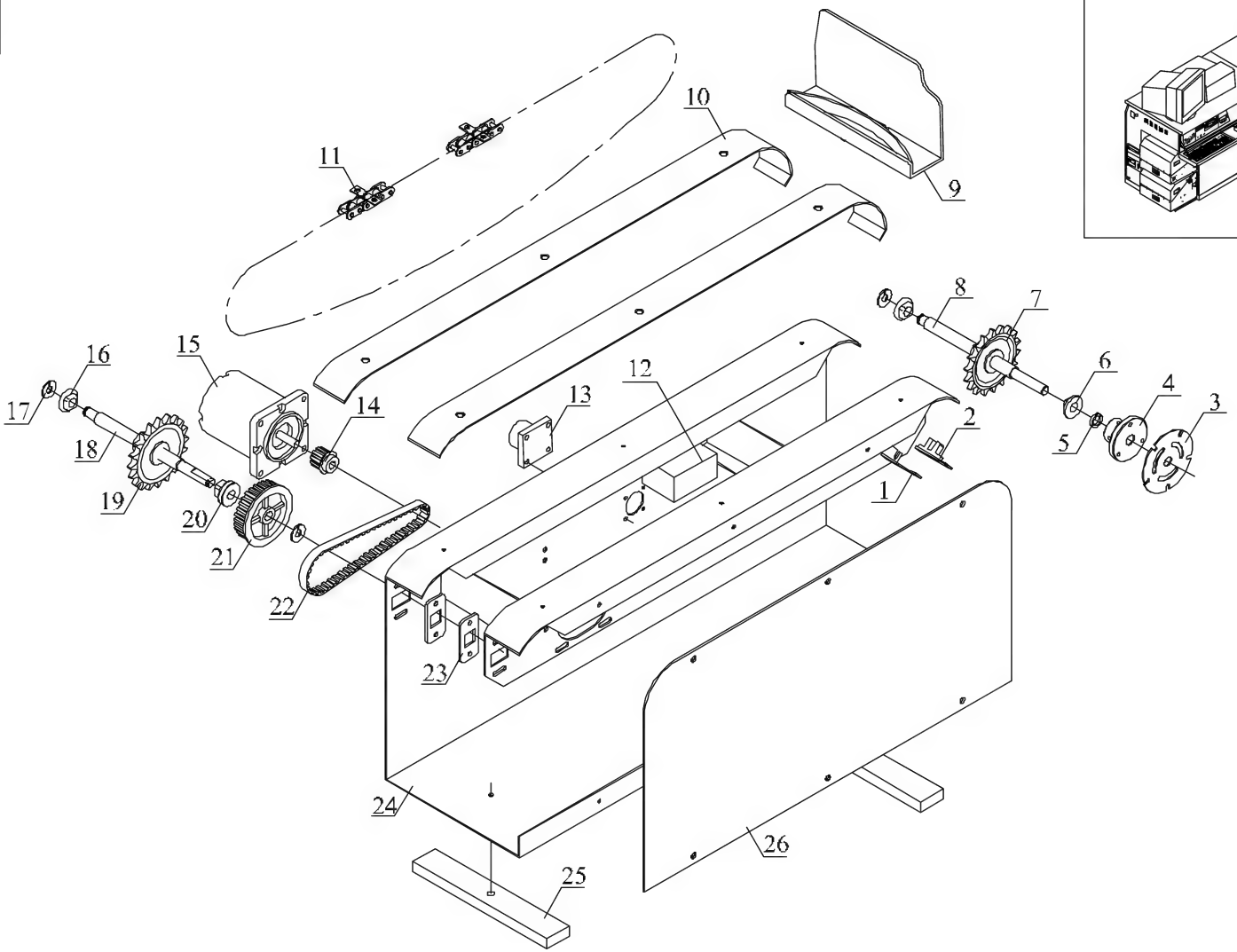


表28/List 28　　见图24/See Fig. 24

NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A213005	分户器光电管支架	sensor bracket				
2	GK112-D101	光检	sensor				
3	A213004	光电感应片	sensor sheet				
4	A213006	分户器光电管盘	sensor tray of sorter				
5	A208145	垫圈	washer				
6	A213016	Φ8四氟套	Φ8 sleeve				
7	A213012	18牙链轮	18 teeth sprocket wheel				
8	A213010	被动轴(分户器)	driven shaft				
9	A213011	分户片	sensor leaf				
10	A213003	滑槽	slide piece				
11	S03009	链条	chain				
12	E02063	电容	capacitor				
13	E09030	航空插座	socket				
14	A213013	11牙同步轮(五)	11 teeth synchronous wheel				
15	E06038	低速同步电机	motor				
16	A214008	轴套	axile bush				
17	A208144-01	Φ6卡片	φ6 ring				
18	A213009	主动轴(分户器)	initiative shaft				
19	A210011	大链轮	big sprocket wheel				
20	A207017	轴套	axile bush				
21	A214011	32牙同步轮	32 teeth synchronous wheel				
22	S03021	同步带	synchronous belt				
23	A213018	定位板	orientation plate				
24	A213001A	分户器焊合件	welding assembly of sorter assembly				
25	A213017	分户器垫块	fill block of sorter assembly				
26	A213002A	加强板	cover board				

图25
Fig. 25

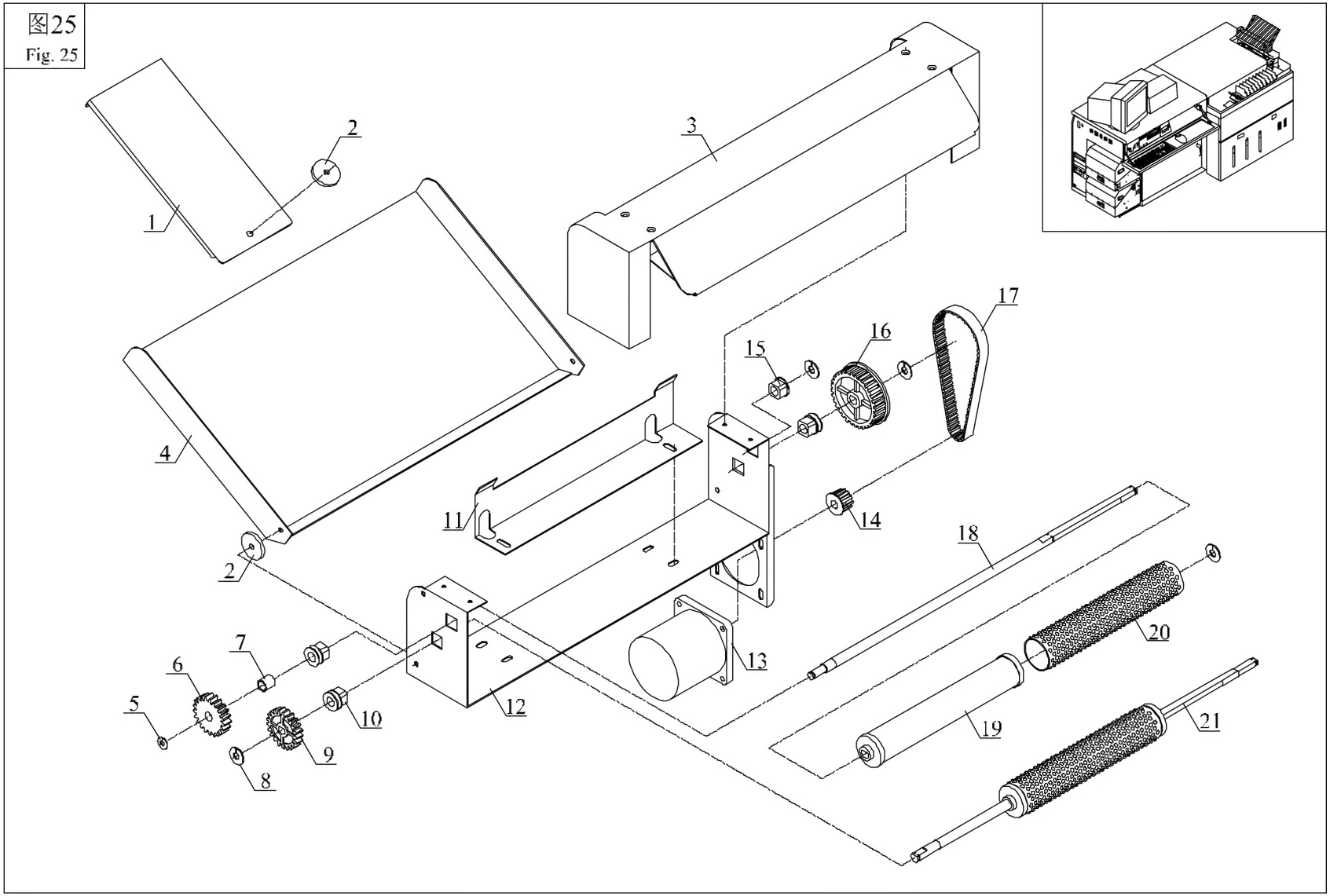
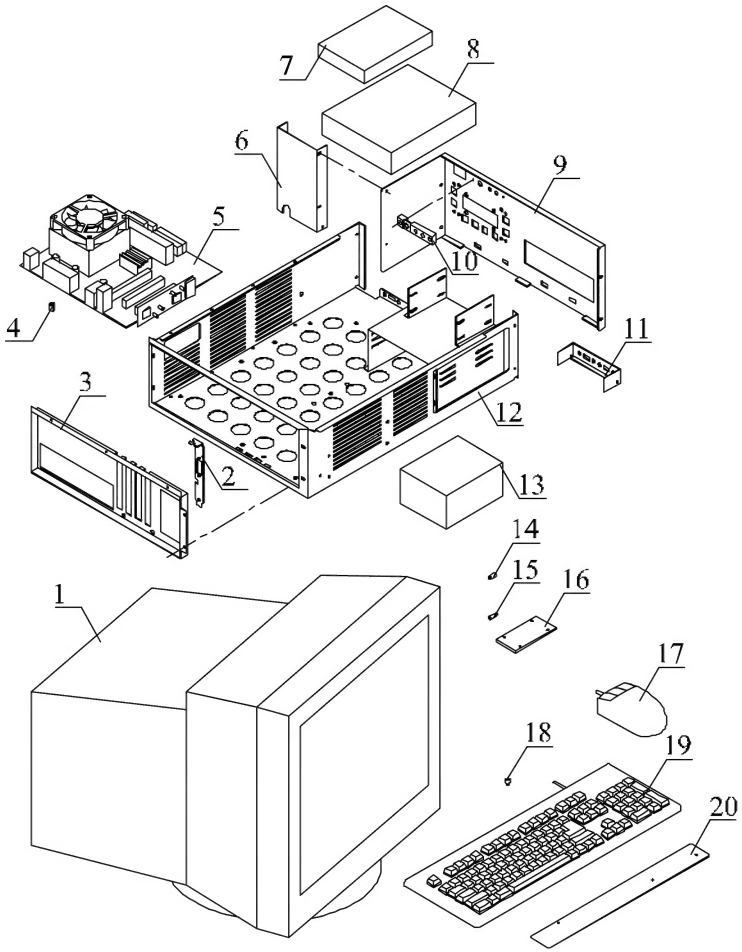


表29/List29 见图25/See Fig. 25

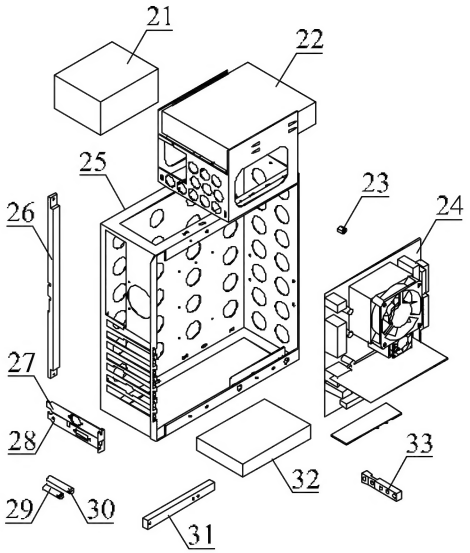
NO.	代号/code	名称	Name	NO.	代号/code	名称	Name
1	A214004A	接片盒加长板	lengthening board				
2	A214012	垫圈	washer				
3	A214003A	盖	cover				
4	A214002B	接片盒	paper receiving box				
5	A208143	Φ4卡片	φ4 ring				
6	A214007	20牙齿轮	20 teeth gear				
7	S02011	差动滚针轴承	unidirectional needle bearing				
8	A208114-01	Φ6卡片	φ6 ring				
9	A214013	齿轮(20牙)	20 teeth gear				
10	A207017	轴套	plastic bearing				
11	A214014	接片盒挡板	stopper board				
12	A214001A	接片盒焊合件	main bracket				
13	E06038	同步电机	motor				
14	A213013	11牙同步轮	11 teeth synchronous wheel				
15	A214008	轴套	plastic bearing				
16	A213014	32牙同步轮	32 teeth synchronous wheel				
17	S03049	同步带	synchronous belt				
18	A214005	接片盒被动轴	driven shaft				
19	A214009	滚筒体	roller				
20	A214010	刺毛套	thorn-shape sleeve				
21	A214006	接片盒主轴	driving shaft				

图26
Fig. 26

用户计算机(上)
user computer (up)



控制计算机(下)
control computer (down)



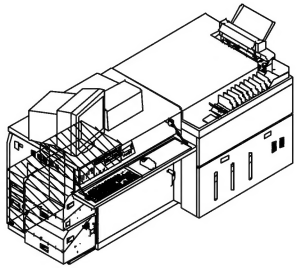


表30/List .30　　见图26/See Fig. 26

用户计算机(user computer)				控制计算机(control computer)			
NO.	**代号/code**	**名称**	**Name**	**NO.**	**代号/code**	**名称**	**Name**
1		显示器	LCD monitor	21		电　源	computer power supply
2	A202420	扬声器板固定板支架	bracket	22		光　驱	CD-ROM
3	D202432A	上机箱支架2	up computer box bracket	23	D202521	主板安装铜柱	copper pole
4	D202521	主板安装铜柱	mainboard fixing copper pole	24		主 板	mainboard
5		主 板	mainboard	25	D202425	下机箱焊合件	down computer box
6	D202428A	上机箱右侧挡板	right spacing plate	26	D202427B	下机箱压板	compaction plate
7		硬　盘	hard disk	27	D202433	转换插头安装架	fixing bracket of BNC
8		光　驱	CD-ROM	28	A202420	扬声器板固定板支架	fixing bracket
9	D202424-05	上机箱面板	up computer box panel	29	D202520	机箱短压柱	short compaction pole
10	U302541	开关安装板	switch fixing plate	30	D202519	机箱长压柱	long compaction pole
11	D202419A	USB接口安装板	USB fixing plate	31	D202508	集线器压板	hub compaction plate
12	D202424C	上机箱焊合件	up computer box	32		硬　盘	hard disk
13		电　源	computer power supply	33	U302541	开关安装板	switch fixing plate
14	P102202	按钮支撑座	button sustentation				
15	D202505	显示屏安装柱	fixing pole				
16	D202507	显示屏垫板	supporting plate				
17		鼠标	mouse				
18	D202516	键盘板安装柱	Keyboard plate fixing pole				
19		键盘	Keyboard				
20	V202479	键盘附板	Keyboard plate				